



## Original Correspondence.

## TUNNEL THROUGH MOUNT CENIS.

SIR.—There appeared in your valuable Journal of last week a very interesting description of the machinery used, and with great success, in boring through the above tunnel, by Mr. Charles Fox, a member of the Cornwall and Devon Mining Association, to whom the readers of your Journal are indebted for the pains he has taken to bring the subject before the notice of the mining engineers. I should think that if Mr. Fox were to continue the subject, and give a drawing of the machine in detail, and show the comparative cost of drifting by this mode and the usual way by manual labour and common borers, that he would confer a great boon on all parties connected with mining. I concur with Mr. Fox's remarks, that a great deal could be accomplished towards applying mechanical means to bore through hard rocks. I have, during the last 10 years, thought a great deal on this subject, and have also paid attention to the several suggestions laid out by scientific men. The objection I find in the application of machinery to this description of work being its complication, the liability to breakage, the space occupied at the face of the drifts, and also the heavy outlay in conveying steam or air from the surface to the mines, especially when the drifting should happen to be in some distance from the bottom of the pit.

IN NEW WINNINGS, starting from the bottom of the pit, and where a great length of which is requisite to be made before reaching the workable seams, during that period the winding-engines, generally speaking, are not wholly employed, consequently there is ample supply of steam-power at command, which could be applied to many useful purposes. I have found it so during my experience in mining the last 20 years; and, in my opinion, under such circumstances, the application of machinery for boring could be used, and with profitable results; and also, I am sure, that if some economical plan could be devised to accomplish such operations, a great deal of time could be saved, which is a very important element connected with mining. I trust that our scientific men will persevere towards approaching this point; and they should be encouraged in every respect by proprietors of mines, who, in the end, get the greatest benefit.

WELSH MINER.

## APPLICATION OF MACHINERY TO MINING.

SIR.—Because it is an axiom that the well-being of one interest tends to the general benefit of all, the fact itself is generally lost sight of altogether, in considering what may tend to promote that interest; the causes usually being the justifiable doubts of some and the mistaken prejudices of others; and it is to such men as Mr. Charles Fox, who devote all the resources of their mind, and bestow all their time and attention to the welfare of their fellow-creatures, that a deep debt of gratitude is generally due by the public, more particularly in this instance, for drawing the attention of the mining interest to a subject which must, sooner or later, from the force of circumstances alone, prove one of deep, if not of vital, import to the mining community, and consequently to the public—perhaps to none sooner than the proprietors of our native copper mines. I allude to Mr. Fox's interesting letter, in last week's *Mining Journal*, on the subject of the "Excavating Machinery in Mount Cenis Tunnel," and to the substitution of machinery in the principal underground operations, and take this means of thanking him for giving me the opportunity of again bringing under the notice of the public what I trust may be considered the adaptability of my machinery for all driving or sinking purposes.

It is scarcely fair to bring into comparison machinery made with the unlimited resources of two Governments for a purpose in which outlay for plant, cost of construction, and working were the least considerations, with machinery purposely constructed for its adaptability as to size and simplicity to meet the necessity of the requirement, that it must be worked by men totally ignorant of mechanism; and, lastly, that the cost attendant on its adoption, and time saved thereby (which latter forms a considerable ingredient of cost) must be less than that incurred by the present mode.

I, therefore, trust I may be permitted to show that, if the Italian machine may not be altogether desirable for our general purposes, in consequence of its length, and expense of working it, that there is machinery attainable that I am confident will meet the general requirements, and for this purpose I think I can hardly do better than give, so far as is in my power, from the data given by Mr. Fox, a comparison of the points which he, as a gentleman thoroughly conversant with such matters, considers to be of the most importance, between the Mount Cenis machine and my own.

The Italian machine delivers 200 blows per minute; mine, in consequence of the difference of its construction, 500 blows per minute.

The former requires a pressure of five atmospheres to enable it to deliver the number of blows stated; mine, for the reason already given, requires a pressure of two atmospheres only.

The Italian machine delivers altogether, at a speed of 200 blows per minute, 29 cubic feet of air. I never measured what mine delivered, but calculating its capacity, supposing it were filled at every stroke, requires 17 cubic feet per minute, working at the rate of 500 blows per minute. This makes no allowance for cut-off, which, working at the rate it does, may reasonably be calculated at 25 per cent. off the amount given.

I have purposely given a liberal working pressure on the piston; but with only two-thirds of the pressure stated, I have bored holes through rock costing full 20/- per fathom, to drive at the rate of 20 inches in 19 minutes; and through rock costing 5/- per fathom, to drive at the rate of 1 foot in 4 minutes.

From the low pressure required to work the machine, reservoirs for the air are dispensed with, and consequently the heavy expense attending them.

The air-pump may be placed at surface, and attached to any motive-power there may be available on the mine, or it may be attached underground to the main rod of the pumping-engine, in the shape of a plunger, of lighter construction, and with less expense in fixing. The cost of branch pipes to convey the air would be from 2s. 6d. to 5s. per fathom.

The whole cost of the air-machinery would be fully covered by the saving effected (say) in the cost of making a single winze only for the purpose of ventilation; for, with the adoption of this machinery ample ventilation would be secured, and ventilating winzes dispensed with altogether.

In conclusion, I have only to add that I shall be most happy in acceding to Mr. Fox's wish, to supply a machine for trial in any mine within the sphere of the Cornwall and Devon Mining Association; and, as an earnest of my confidence, provided the mine will find the air, I am quite ready to undertake a contract in any mine within the limits of the association, to drive from 250 to 2500 fms.; to begin, say, at double the average speed the ground can be driven by manual labour, for 10/- per cent. less cost than that now given to the men for driving; under any penalty per diem up to 10/-, that the monthly average may not have been reached, provided the mine agrees to pay me a similar premium per diem on all the ground I lay open above that monthly average. As a large number of visitors might be expected to visit the mine where the machine is at work, I should prefer the machine working in an adit, where it would be most accessible.—Tavistock, Devon.

EDWARD S. CREESE.

## MACHINE VENTILATION, AND THE FURNACE.

SIR.—I anxiously waited for your last Journal, in the hope that Messrs. Ridley and Jones would have furnished the various measurements asked for in your article describing their invention, and was much surprised to find that they have not even referred to the matter; more especially as you, unfortunately, published in the same Journal an article from a correspondent headed "The Dangers of Mechanical Ventilation." In your article you state that Messrs. Ridley and Jones's apparatus will pump air at the rate of 100,000 cubic feet per minute, with only a 15-horse engine to work it. This at first sight, doubtless, appears to indicate that the machine is a perfect marvel, but practical men are not inclined to accept such statements as conclusive, because they well know that they prove nothing whatever unless every detail connected with the circumstances of the working are well known. The practical man must know not only what it is estimated that a machine will do, but also how the calculation upon which the statement is based has been made. A statement such as you have made, when left unsupported by detailed facts, is likely rather to injure the reputation of a machine than otherwise, because the natural inference is that the details cannot be satisfactorily given.

Mechanical ventilators are machines concerning which more erroneous statements are made than anything used on a colliery, and we must attribute the circumstance of furnace ventilation having always hitherto received the preference among practical men, not to any theoretical imperfection in the machines, which have from time to time been proposed, but to the disadvantages inseparable from a machine, and not existing with the furnace. The bare statement that you have made as to the powers of Messrs. Ridley and Jones's ventilator is, in my opinion, utterly worthless

and I will further state that the spiral chamber system, which constitutes their invention, is very far from being the best that has been tried. The fan at Elsecar was infinitely superior; and assuming mechanical ventilation to be admissible at all, there are half-a-dozen systems which would be preferable to the spiral chamber.

Your correspondent who writes upon the "Dangers of Mechanical Ventilation" states nothing but what is strictly true, as to the ventilation continuing long after the furnace has stopped, while it stops instantaneously upon the breakage of the ventilating-machine. But that is not all: a ventilating-machine is often supposed to be doing four times the work it really is—mistake that can never occur with the furnace. It would not at all surprise me if upon closer investigation it is found that the current produced by Messrs. Ridley and Jones's ventilator is much nearer 20,000 than 100,000 cubic feet per minute; but even if it really does give 100,000 cubic feet as stated, I maintain that there would be greater safety with a furnace producing only 50,000 cubic feet per minute, more especially if the mine were a very fiery one, and extensively worked. The more men I might have in a fiery mine the less should I be inclined to risk their lives to anything that furnaces ventilation.

I have known, in such inventions as Messrs. Ridley and Jones's, the capacity of the chambers to be measured, and the work done calculated from this measurement, and it may be that they have calculated upon the same principle. Thus, we will suppose that the West Ardsley machine is of the capacity of 700 cubic feet, and makes 150 revolutions per minute;  $700 \times 150 = 105,000$ , whence it is supposed that a current equal 105,000 cubic feet per minute is produced. This, however, is not the case. In practice such a machine, running at such a speed, would not produce 35,000 cubic feet per minute, even if permitted to draw its supply from the surface; if drawn through the mine the produce would be much less. I am not prepared to explain scientifically why this is so, but I know that practically it is. It does not follow that because a fan driven at 50 revolutions will produce 10,000 cubic feet per minute, the same fan driven at 100 revolutions per minute will produce 20,000 cubic feet, and it will be the same with the spiral chambers.

In your article you describe Messrs. Ridley and Jones's invention as a modification of some of the best forms of centrifugal-pump, which is no recommendation, as you will readily see from the following fact. While the International Exhibition was open, I have seen Messrs. Gwynne's large pump made to revolve at 50 revolutions per minute, without a pint of water being raised, and at 100 to 150 revolutions per minute there was a fair volume of water thrown—but with all centrifugal-pumps there is an enormous waste of power. A centrifugal-pump will not pump at all driven at a moderate speed, and the quantity pumped does not increase in proportion to the speed; yet this is what Messrs. Ridley and Jones would have us accept as the most efficient ventilator extant.

A DOGGER.

## MESSRS. RIDLEY AND JONES'S PATENT TRUNK COAL CUTTING MACHINE.

SIR.—In our day it is pleasing to notice the steady progress in mechanical science. In almost all recent inventions introduced to public notice, whether by scientific men or "practical workmen," each of these inventions bear the impress of great utility, free from that complexity which characterised the earlier history of mechanical invention; not only is this so in mechanical science, but in every other branch of scientific discovery. In fact, it is a progress which commands our admiration, and often rivets the spectator to the spot, as he gazes in wonder at the new discoveries which are almost daily introduced to supersede manual labour. The sewing-machine, to a great extent, has superseded the tedious needle and thimble, stitch-by-stitch operation of the poor needle-women. Small as the needle is, it has sent more poor women to premature grave than either the sword, famine, or any other agency for the destruction of the human race.

In our mechanical and manufacturing establishments machinery does all the drudgery, while the higher intellect of man alone is required to direct and control its power, and to feed it with the raw material. With the exception of the collier, in his unseen labours in the gloomy bowels of the earth, there is scarcely a branch of our national industry that has not within the last few years been completely revolutionised by the inventive genius of man; the intelligent workman is no longer a slave, but the director of powers of Nature which do the work for him, whether this be in forging the ponderous shaft, or weaving the most delicate texture.

Hitherto, as I before said, the labours of the collier have been exempted from the intrusion of machinery; the collier is still a slave in the gloomy caverns in the bowels of the earth, with the destructive fire-damp and deadly carbonic acid gas, and other dangers, for his sole companions. There he toils on in misery, unseen by the bulk of his fellow-countrymen, wielding his "heavy pick"—which, like the poor seamstress's needle, buries him into a premature grave—digging coal, and sending it to the surface, to warm and cheer the fire-sides of the million, and also to carry on the great manufacturing and mercantile processes of our great commerce in every part of the globe. But at length the gloomy bowels of the earth are about to be invaded by machinery.

On Saturday last I inspected a new coal-cutting machine, at Mr. Middleton's factory, in the Borough, the invention of two intelligent gentlemen, Messrs. Ridley and Jones, which will do the present day's work of a collier while he is taking off his clothes, trimming his lamp, and collecting his tools on a morning to commence his labour. It is decidedly the best "iron collier" I ever witnessed. This tiny machine is only 27 in. high, 14 in. wide, and 36 in. in length; it runs on four small wheels, and on a pit tramway 14 in. wide, weighs only 10 cwt., with a cylinder 6 in. in diameter, worked by compressed air, it moves forward and backward at the pleasure of the man who directs its operation, and under the most perfect control. There stands the "iron collier," "pick in hand;" it will strike a blow which will only crack a nut, or shiver a massive piece of rock into atoms.

It is capable of undercutting the coal from 3 feet to 4 feet in depth and 150 yards in length, in about 8 hours. It strikes 100 blows per minute with unerring aim; it leaves the coal behind it ready to be placed into the skip to be sent to the surface, with not one-fourth the waste the coal is subject to by the present hand labour of the collier. One man guides the tiny machine; a second follows it, and clears up the dirt it leaves behind. So admirable and compact are all its details, that the common colliery blacksmith can repair almost every part of it in case of breakage. In a word, it is the most perfect "collier" of its kind ever offered to the notice of colliery proprietors. Let me revert again to the amount of labour it is capable of performing, compared with that of the collier by hand labour. We have said it will undercut the coal from 3 feet to 4 feet deep, and for 150 yards in length per day. In most of our collieries the collier undercuts, on an average, about 6 yards in length 3 feet deep, for a day's work, for 3s., or (say) at 6d. per yard. At this rate 150 yards would require

25 men, at 3s. per day ..... £3 15 0  
By the machine:—1 man to direct the machine (say) per day 20 5 0

" " 1 labourer to clear up the dirt, per day .. 0 3 6

" " 1 mechanic and 3 labourers to attend to air-pipes, say 11s. per day ..... 0 11 0 = 0 19 6

Balance ..... £3 15 6

in favour of the machine over hand labour, to say nothing of the expense of safety-lamps, oil, tools, and tool sharpening, and other expenses.

It is the simple question of *Machinery v. Labour*; and we all know which is the most profitable. This, together, as I before stated, with not one-fourth the present loss of coal in the cutting. But it has another great advantage—the air discharged from it assists in ventilating the works. The machine is so small that it can be stowed away in a very small space when it has done its work. For the long wall system, lately advocated by me in the Journal, this machine is most admirably adapted, much better, perhaps, than it is for the stall and pillar system.

In these pressing times of colliery competition, when colliery proprietors can scarcely make the two ends meet, or even pay the interest on their invested capital, it will prove a boon indeed; and I should say our large colliery proprietors will not be slow to take advantage of its agency; while, as to the collier, it will rid him of the laborious toil he at present has to undergo for his daily bread. Much as I have already said, I have not done ample justice to this invaluable invention for colliery operations.

But its powers will not be confined to such work; it is capable of being applied to break stones on the common roads, square and dress blocks of stone in the quarry operations, undercutting the earth in railway cuttings, breaking up hard ground, and numerous other operations, where rough labour with the pick is required, and even for cutting trenches for draining land. I have simply mentioned these as operations to which the talented inventors may turn the machine to account, in addition to that of colliery operations, and I wish them every success.

G. SHEPHERD, C.E.

26, Throgmorton-street, E.C., August 11.

## PATENT LAW REFORM NO DIFFICULTY.

SIR.—The fear of doing too much would appear to be the abomination of the British politician and statesman, hence the Patent Law of this country continues to remain the same confused heap of abuses; exciting ever and anon the denunciations of the jurist and man of science, and although a Royal Patent Law Commission has been appointed, and is now sitting, yet I fear unless we can get the commissioners to understand that a few simple alterations will satisfy the immediate exigencies of the case, we shall very likely have to wait till the Greek Kalends for any substantial measure of amendment. Viewing the matter thus, I would once again ask for space in the Journal to propose a few simple alterations for consideration, which alterations will involve no radical changes in the law, interfere with no vested interests, and in nowise trench upon the delicate question of Royal prerogative; yet, at the same time, they would be productive of much advantage to inventors and patentees, and of considerable benefit to the public at large.

First, then, the present five pounds stamp duties might be reduced to three pounds each, in which case provisional protection could be obtained for three pounds instead of five pounds; and the patent could be sealed, specified, and completed for fifteen pounds, instead of costing twenty-five pounds, as is now the case.

Further, following the same ratio of reduction, the third year stamp duty could be fixed at *thirty pounds*, and the stamp duty payable at the seventh year at *sixty pounds*. As I have before recommended, the books of abridgments of specifications should be published on all those subjects now untouched, and all subjects should be kept *au courant* by means of yearly or two-yearly supplements. Not being myself over sanguine as to the desirability of the official investigation system, I would also repeat my old suggestion, which might be adopted and tried as a substitute for that system—namely, that everyone applying for a patent should be called upon to make use of the above-mentioned abridgments, and investigate for himself, to ensure which no patent should be allowed to proceed without a second declaration by the applicant of his belief that he is the first and true inventor, *although he has made the required investigation*.

Furthermore, the amendment of the provisional specification should be allowed whenever needful, provided that notice be first given by gazetting or public advertisement, with liberty for all persons likely to be affected by the proposed amendment to oppose it. With regard to opposition, the present blindfold system should be altered by *first* reducing the fee for registering the notice of particulars of objections from two pounds, the present charge, to a charge of *ten shillings* in future, and by either permitting the provisional specification of the invention objected to be inspected *before proceeding to the hearing of the opposition*, or by causing the notice of particulars of objections to be compared (by competent officials) with the provisional specification in question without any further fee, thus rectifying the present absurd system of carrying on oppositions upon the mere surmise that Jones, Brown, or Robinson's application for a patent, for improvements in steam-engines for instance, may possibly be for the same improvements as those invented by the opponents. The further proceedings, as to hearing and so forth, to remain as now. Also, anyone having new improvements upon a patent formerly granted to him, which improvements necessitate the use of the whole or part of the original patent, should be allowed to add the same to his original patent upon the payment of a small fee (*say three pounds*), the allowance of such addition to be subject to the same rules as the allowance of disclaimers and memoranda of abstraction now are.

The confirmation of letters patent, which refer to inventions afterwards found to be wanting in novelty, should be dealt with more liberally than heretofore, so that no patent shall hereafter become absolutely forfeited, because some one, many years ago, patented a somewhat similar thing, which was never brought into practical use, or which some one had formerly used to a very limited extent, in some out-of-the-way place, where it never attracted the attention of the public; provided, of course, that the new patentee has really brought his invention into public operation. The best rule in such matters appearing to be, that one who brings into public use a valuable industrial improvement should not lose his rights because some one had previously made an unsuccessful attempt to do the like.

Applications for a second provisional protection before the expiration of the first should be thoroughly legalised, and this without regard to whether, during the first provisional protection, the invention may have been published or not; all such second applications, however, to be openly stated to be *second applications*, and advertised for opposition as such. A judicial commissioner, or a special court of patents, is likewise a great desideratum, which commissioner or court should be charged with the revision of all the proceedings of the Patent Office officials, and the adjudication of all causes relating to patents. This court should have the same power as a county court, and be enabled to try cases without a jury, or with a common jury, or with a scientific jury, as proposed by the Inventors' Institute.

F. W. CAMPIN.

## NEW SYSTEM OF GEOLOGY AND ASTRONOMY—NO. IV.

SIR.—In my last letter I treated of the planets and their moons, and in the present I am to treat of the still more difficult subject of comets, which will complete what I have to say of the solar system. All parts of a body, however large, must, of necessity, rotate in the same space of time. That being so, it follows that the outer surface must go round quicker than the internal parts. For instance, the speed of the earth at its surface is 1000 miles per hour, but at a point near its centre the speed would only be 100 miles per hour. The diameter there will only be one-tenth of the diameter at the surface, consequently the speed of rotation will only be one-tenth of what it is at the surface.

The sun, from west to east, takes twenty-five days to perform his rotation. This is ascertained by the departure and return of the spots on its surface. This speed is twenty-five times slower than the rotation of the earth, for the earth goes round in one day. I have already explained that the size of a body has nothing to do with the time of its rotation, so that the sun actually moves twenty-five times slower than the earth. Jupiter performs his rotation in ten hours, so that the sun goes no less than sixty times slower than Jupiter.

The speed of the sun's present surface is 4000 miles per hour, but if the sun were extended to Neptune, which it probably was when that planet was created, his speed would be no less than 20,000,000 miles per hour. With a body in motion at so inconceivable a velocity there is no difficulty in perceiving how the planets were thrown off. Neither can we be at a loss to see how the planets got their original impetus, for the body thrown off will retain the same impulse as that of the parent stock.

When chemical action within the sun began that would cause rotation for there can be no action without motion, and that is the probable beginning of creation. Motion begins in the centre of the sun, which would then be only a vast mass of air or nebulous matter. The rotation of the sun causes the formation of the comets and planets, and not only imparts to them their respective motions, but holds them in their places ever since.

The number of comets which traverse the solar system is very great, several hundreds having been seen at different times. Although the substance composing these bodies is extremely light, probably not so heavy as atmospheric air, yet what they want in density they make up in bulk, for several of them are as large as the sun. But though the comets are so much larger, the solid matter contained in them will not exceed that of an ordinary sized planet.

The orbits of the comets are not confined to the plane in which the planets move, for they circumnavigate the entire area of the solar system in every possible direction. Having spent their force outwards, they return to the sun, in accordance with the law of gravitation. The peculiarity of the orbit of a comet is that it is much more oval than that of a planet, approaching very near the sun at one time

they have come from the sun, they would get that motion as well as the planets; and on looking at the comets through a good telescope, they present the appearances of a body turning on its axis. The tail of a comet is always turned away from the sun, whether the comet is approaching or receding from that body. The peculiar shape of those comets which have tails admits of a very simple explanation. These comets, when at a distance from the sun, will be of an oval shape, in consequence of their rotation; but when they approach nearer to the sun, their orbit speed is greatly increased, when their shapes change. The oval becomes an elongated body, with a head and a tail, which are its poles. The comet will thus rotate lengthwise from pole to pole. The comets without tails are those with a short period and slow motion, showing that the peculiar shape of the comets is owing to their rotation and orbit speed, and the extreme lightness of the materials of which they are composed.

If I am asked why the comets should be self-luminous and not the planets, I answer that the atmospheres of the planets have been exhausted of their luminous properties by the deposition of the rocks which form their solid part, whereas in the comets no such deposition has taken place. The comets have retained their luminous atmospheres the same as when they first received them from the sun.

I have shown that when the sun was a thousand times larger than it is now its rotation at its surface would be 20,000,000 of miles per hour. When the sun was going round at this fearful velocity, it would impart to the comets thrown off that enormous projectile force which they have, which carries them out to the extreme limits of the solar system. The comets first thrown off would have the greatest projectile force, and their period of revolution would be great—say, two or three thousand years, while the period of the last thrown off would be proportionately short—say, two or three years.

As the comets are the lightest bodies known, they would be thrown off before the planets, for the lightest parts of the sun would go off first. That comets, the oldest creations of the solar system after the sun, will ever be condensed into planets and moons, and so become fit for habitation, I do not think probable. Countless ages have already passed away without producing any such result upon them; it is, therefore, only fair to conclude that they are intended to remain as they are.

But although the comets are not likely ever to become inhabited worlds, they doubtless perform important functions in the economy of nature, which are essential to its very existence. The comets may be considered the carriers of gases and electric fluids to and from all parts of the solar system. They are the arteries and veins of the celestial system, as the metallic courses in the rocks are the veins and arteries of the earth. If I am asked if the sun is likely to throw off any more comets or planets, I answer in the negative. It is true that some of the spots on the sun's surface are very large, some of them being not less than 40,000 miles in diameter, and these are all situated near the sun's equator. Yet the great reduction of the speed of the sun makes the throwing off of new bodies much less probable now than when the sun was larger. The sun's rotation is now only 4000 miles per hour, whereas when Mercury, the last born of the planets, was created, the sun's rotation would be 160,000 miles per hour. The projectile force of the sun would then be 40 times greater than it is now, and for that reason the creation of comets and planets may be considered complete.

The sun is upwards of seven hundred times larger than all the planets and moons put together. But when to the planets we add the comets, I am inclined to think that the sun will be exactly balanced by the comets and planets taken collectively. In this way will the sun balance the planets and comets, and these, in their turn, will balance the sun.

The result of the enquiry may be briefly stated thus. The entire area of the solar system was originally filled by the sun. The comets were first thrown off, which reduces the sun to a diameter of about ten thousand millions of miles, or four times the distance of Neptune from the sun. I arrive at what I have supposed to be the extreme limit of the planets by the decrease of velocity, which gives me the area occupied by the planets known and unknown.

The comets fairly launched into space, the planets, one after the other, are created or thrown off, which reduces the sun to its present size of something less than one million of miles in diameter. The planets are at first very large, but by throwing off their moons they are reduced in size, when they assume the sizes, forms, and orbits they now have.

It has often been said—“Show us how the planets first got their projectile force, and we will explain everything else,” and that secret, the solution of which is so much longed for, is, I trust, now revealed. Motion began in the centre of the sun, and that motion was imparted by the sun to the comets and planets. The polarisation of matter is the origin of motion and life, and that is the energy of the Divine existence throughout the created universe. It has been said that a little learning is a dangerous thing, for it often leads to scepticism, and so it is. It is because we leave off half way in our enquiries that we are lost in the cold regions of scepticism; but carry the enquiry to its legitimate issue and we shall make a safe landing in the region of belief. Truth is belief, and it is by refusing to accept the whole truth that we become unbelievers.

If the sun has an orbit motion, it will be around another sun, which will balance it, and keep it fixed in its place in the heavens. If this is so, the centre of gravity of the system will fall at a point in space somewhere half-way between our sun and the sister sun with which it is connected. The orbit motion of the sun is supposed to be about 50,000 miles per hour, and as a great number of the stars appear to be double, the one revolving round the other, I think it very probable that our solar system has a movement in space around some other solar system.

I have read the interesting letter of “Cosmo” very carefully. He speaks of my theory of the sun being the origin of the planets as an exploded one, because many of the nebulae, which were at one time supposed to be floating masses of air, have turned out, on a closer inspection, to be clusters of stars. But that discovery does not necessarily affect my theory in the slightest degree. I quite agree with your correspondent that Mr. Ennor's idea, that there are some secrets of Nature which must ever remain unknown to us, is absurd. No man is able to say what may not be discovered. The only safe method is to consider everything within the reach of man's capacity; for the moment we attempt to dictate limits to the mind, we find ourselves in fetters which must be broken. The idea of obtaining knowledge, referred to by “Cosmo,” by inspiration, is one which is much commoner than we are apt to imagine. For myself, I do not believe in modern inspiration, for all I know I have received by working myself. I first collect a few simple facts, and then cast about for theories to meet these facts, and in this way knowledge is increased.

It has been said that Kepler got his knowledge of the stars by guessing, but that is evidently a mistake. Kepler was a great observer of the heavens, and it was no doubt by trying different theories to account for the facts he observed that he arrived at those laws which bear his name, and which to this day form the basis of the science of astronomy. Galileo enjoys a greater reputation than Kepler, because his discoveries are more practical, being got by improvements on the telescope. For my part, I consider the discoveries of the closet more valuable than those of observation, and if our modern astronomers would use their brains more than their telescopes they would make more discoveries worthy of the name than they now do.

In my last letter I showed that the primary source of heat and light was not the sun but the atmosphere. Jupiter appears as bright to us as Venus, although he is seven times further off. Now, if Jupiter had been lighted by the sun he would have appeared much less brilliant to us than Venus. The reason why Jupiter appears so bright is because he is surrounded by a magnificent atmosphere. Capt. Maury, in his noble work on the sea and the atmosphere, states that there exists on the earth two zones of calms, where there is no wind, and nothing but rain and fog. These zones will have the appearance of belts on the earth to the inhabitants of Jupiter, similar to the three belts which we see on the surface of that planet.

The sun is said to be one and a quarter times the weight of water, or the same density as Jupiter. I should like if any of your correspondents would let us know how these densities of the astronomers have been arrived at, for to me they seem all wrong. The weight of the earth is stated at five times that of water; but if we assume two-thirds of the earth's bulk to be hollow, which is more than probable, that will give fifteen times the weight of water for the density of the crust. The actual weight of minerals in the bottom of the deepest mines is not more than three times the weight of water; neither is there any indication of the metals becoming heavier as we descend ever so far into the bowels of the earth. If the specific gravity of the earth had been set down as the same as water, that estimate would have been supported by actual facts; but, as five times that weight is given, I am disposed to call it in question. The same remark will apply to all the heavenly bodies, their respective densities being stated five times greater than we are warranted in assigning to them.

True philosophy is to combine theory with practice. All practice is not philosophy, neither is all theory, but the combination of both. The practical man is apt to despise the theorist, and the theorist the practical man;

but in so doing both are equally in the wrong. Let the two compare notes, and condescend to learn from each other's experience, and they will arrive at the truth, and be rewarded by brilliant discoveries in morals as well as physics. The ultimate and proper object of all science is to discover the causes and reasons of things; and yet that object is entirely lost sight of by the generality of writers. Truth is easily found, if that be the object; but if the object be to fill great books, and give them the appearance of much learning, of course, no discovery of truth can be made.

Sloane-street, Chelsea.

A. ALISON.

#### CORNISH MINES AND SUPPLIES.

SIR.—Can some of your correspondents inform me how the price of mining materials differ so enormously in different localities? In the article of Norway timber, for instance, which is so largely used, and consequently forming a serious item in the monthly cost of working mines in Devon and Cornwall, the consumption being upwards of *one hundred thousand loads annually*, it appears there is no rule by which a London shareholder can compare the charges of different mines.

Having shares in mines in the neighbourhood of Tavistock, Liskeard, Bodmin, Truro, Camborne, Hayle, and Penzance, and comparing the bills for timber charged at the various mines when at the secretary's office, in London, judge of my surprise to find the price of every district widely different, and the only explanation which I could get of the secretary was, that the different localities had their own peculiar mode of measurement. Surely this is a very unsatisfactory explanation to any London shareholder. Her Majesty has her officers in every port where the article is imported, and before he is admitted into the Customs he must pass a certain, as I am told, strict examination. Now, I want to know whether the authorities have to instruct the Custom House officer as to the various measurements in the different ports, or whether there is one universal practice throughout Great Britain; and if so, why should the consumers be deprived of the privilege of buying timber by Custom House measure in Cornwall, as well as in other parts of England, Scotland, and Ireland? I could then have some check upon the relative charges in the various districts in which I am a considerable—

ADVENTURER.

Aug. 12.

#### NON-PAYMENT OF CALLS.

SIR.—I am glad to see that the subject of non-payment of calls has now begun to attract some notice. The evil is a great and crying one, and in consequence of illegitimate speculation by people whose means do not justify it is very much on the increase. It is hard that payers should have to pay for non-payers, which it needs no great amount of reasoning to show that they do. The evil is encouraged and nurtured by the private friendships and business connections between shareholders and secretaries, interrupting the proper course by which all calls should be duly enforced. The remedy for the evil lies with the adventurers, and let me impress upon some one or two independent men to make a point of attending all the meetings of their mines, and strictly investigating the amount and character of arrears, and insisting on their immediate payment; and in order to effect this, let them not be put off with an assurance from the authorities that “all will be right,” and so on, but pass resolutions (not of a general character) fixing limits for payment of arrears. This is the only course that will tend to check the present state of things. I, for one, have been a punctual payer, but will not pay another penny while any calls are in arrear. This, too, must soon bring people to their senses.

STAND FIRM.

#### LOOK TO YOUR ARTICLES OF ASSOCIATION.

SIR.—The courteous and able writer in last week's Journal draws attention to a subject highly important to all capitalists embarking in limited liability enterprises. The Joint-Stock Companies Act of 1856 gave power to each company to frame its own Articles of Association, and very objectionable conditions were not unfrequently introduced. The Companies Act of 1862 abolished this evil, by placing the power in the hands of the shareholders, and requiring that where any departure from the form prescribed in the Act was sought, it should be proposed and adopted at two extraordinary general meetings of the shareholders duly convened, and in the form of a special resolution. In the case alluded to by your correspondent there were, from inadvertence, four general meetings held, at each of which the special resolution proposed in lieu of the regulations contained in the table marked A in the first schedule of the Act, was considered and unanimously adopted. At the first every clause was submitted and considered. The resolution was framed under, and approved by, eminent counsel of considerable experience; and his attention has again been called to clause 39—objection to by your correspondent. His opinion is that the clause is a great protection to directors and the stedfast class of shareholders; that it preserves the power to prevent dishonourable shareholders from transferring their shares to men of straw, in cases where an adventure is not successful, and leaving the more honourable to bear the whole burden of a failing concern. That the directors can in any and every case waive the regulations as to transfer of shares not fully paid up, and can state generally they do not intend to enforce compliance with the article 39; they may in practice ignore it, reserving the power to exercise it only when the interests of all the shareholders demand its enforcement. This is the practice with the directors, and, happily, the prospects of the adventure are so favourable that it is very probable clause 39 will never be enforced.

H. BROOK,

Secretary to the Great Devon and Bedford (Colcharton) Mining Company.

#### AMERICAN ENTERPRISE.

A GRAND TRUNK RAILWAY, 1858 MILES LONG.

SIR.—Some time since we notified there would be a great demand for English railroad iron for this country within a short period; it now becomes our pleasing duty to announce that the above immense undertaking has commenced, and is being prosecuted with as much vigour as the present unsettled state of the country will admit of. The great scarcity of labourers, however, materially retards its otherwise rapid progress, and in all probability will do so until the close of the war, unless immigration sets in more actively than at present. A great number of persons, it is true, are arriving every week from Ireland, Wales, and Germany, but the great bulk of these are absorbed in the agricultural districts, where a great dearth of labourers prevail, while some few, and that perhaps only a very few, attracted by the bounty offered by Government, enter the army or navy; consequently, a very small proportion are available for works so far distant from the sea ports as Missouri or California.

This line of railway starts from Missouri, passes through Kansas, crosses the Sierra Nevada mountains, and terminates at tide water in Sacramento, California; thus opening up a direct railway communication across the North American continent from the Atlantic to the Pacific Oceans. The work, which is divided into three sections, has been commenced at both ends, and in a short time will be energetically pushed on in the centre. The eastern portion has been taken by a Kansas company, and already the line has been graded for over 300 miles from the junction of the Kansas and Missouri rivers going west; and by the end of the present year, if labour can be procured, the line will be completed, so far as the earthworks are concerned, entirely through the State of Kansas.

The central portion, a distance of about 1000 miles, is the most difficult part; it crosses the Sierras at Summit Valley, at an elevation of 7027 ft. above tide water level at Sacramento City, but the line has been so laid out that the steepest gradients do not exceed 105 ft. to the mile—a rate of inclination several feet less than one of the lines passing through Virginia. The western slopes of the great mountain range have presented many difficulties. There are many rivers running through gorges from 500 to 2000 ft. deep, with their precipitous slopes varying from perpendicular to an angle of 45 degrees. To avoid these the surveyors have run the line along the most unbroken ridges, and although somewhat extending its length will, it is said, only cross one river (the Little Bear river) of any magnitude. The eastern declivity is not so difficult, although there will be eighteen tunnels to drive, varying from 300 to 2000 ft. each. Part of this section, or about 155 miles, will cost \$85,000 per mile.

A special chartered company has been formed to construct this central portion, called the Pacific Union Company. They will be assisted to the extent of about 350 miles by the Mormons, should it be decided to make a short divergence of the line, so as to pass through Salt Lake City, in the Utah territory, but as yet we have no positive information on this head. The western division is being constructed by a Californian company. They have already completed 60 miles of the road at the Sacramento end, and are now only waiting the arrivals of the metals from England to get it into running order. This section of the line passes through heavily wooded forests of fir, cedar, pitch pine, oak, and tamarac, furnishing cheap and ample materials for sleepers, bridges, and buildings. Their capital is

\$15,000,000, the estimated traffic returns are \$4,000,000 per annum, while the working cost is not to exceed \$1,000,000. If the work can be done within these figures, and their estimated returns realised, the stockholders may anticipate a dividend of about 25 per cent.

This western portion of the line will speedily open up immense mineral wealth, now lying dormant for want of transportation. It is a well-known fact that there is at the present time large quantities of low grade silver ore being thrown aside that would pay well for returning if some cheap means of carriage to the coast could be obtained, beside rich lead and copper mines in abundance.

The cost of the entire line, we are informed, will amount to \$90,000,000, or \$53,175 per mile average, which reduced to English currency will be 10,974/- per mile. The amount appears small when the distance to where the materials are to be conveyed is taken into consideration. We are inclined to think that 25 per cent. at least should be added to the estimated capital for the completion of the works; nevertheless, whether the cost exceeds the engineer's estimate or not, many are sanguine that the entire line will be executed and in working within seven years from this date.

Such, then, is one of those gigantic projects that mark the progress of the age in which we live—a work which, when completed, will open out to industrial enterprise over 150,000 square miles of mineral and agricultural territory, abounding in all the requisites essential for the support, wealth, and happiness of millions of mankind—a latter-day Canaan, a land of promise, where men of all nations, grades, and classes, free and independent, may with industry find a home of peace, plenty, and competence; a new epoch in the march of civilisation towards the great West will date from the accomplishment of this great work. Its inauguration will bring numerous wild Indian tribes, now the scourge and terror of all emigrants by the overland route, under subjection, and in a few years, by inculcating the mild principles of Christianity, convert them from savages into useful, peaceful, law-abiding citizens.

One of the great questions of the day now agitating the minds of the entire political community of this country is the “abolition of slavery.” It is a matter of very serious importance, and one not to be rashly decided, for to liberate at once 4,000,000 slaves without first finding suitable means for their employment and support would be a rash policy, and prove suicidal in its results. To retain this accursed institution after the cessation of present hostilities (of which it has been the chief cause) would be to cast an indelible stain on the fair escutcheon of a country whose avowed principle is universal freedom. If gradual, compensated emancipation should be the final resolve of the Government and people, and the latter say *vox populi* shall rule, the case will assume a tangible form, and the remedy for existing evils will only become a matter of time. Should such be the much-to-be-wished-for consummation, then those extensive and almost uninhabited, but rich and fertile, territories of Northern Texas, Nebraska, Utah, Sonora, and New Mexico, opened up by means of branch railways from the main trunk line to colonisation, afford ample scope for the profitable employment of all the surplus negro population of the Southern States. But the end of the war is not yet, and before its close other interests or elements may commingle to materially alter its programme. Should, however, European nations, as a unit, continue to maintain a strict neutrality, it is not difficult to foresee its final result; but on this contingency, and this alone, hangs the chances whether or not the motto *E pluribus unum* can or shall be maintained.

CHARLES S. RICHARDSON.

Kanawha Court-house, West Virginia, July 25.

#### INVESTMENT OF CAPITAL—MINES AND SLATE QUARRIES.

SIR.—In my former letter to the Journal, I made a few remarks on the principal slate veins—the Bethesda Quarry, which belongs to the Hon. Colonel Pennant; the Llanberis Quarry, which belongs to Mr. Ashton Smith; Nantybotts, and Nantlle Vale Slate Quarries, these have been opened on the Cambrian stratification. The next regular vein is Castell Cidwen and Moelfra; then the Festiniog slate vein, upon which are opened Croesor, Rhosydd; Messrs. Holland, Mathews, Greaves, and Lord Palmerston's quarries, all of these are on the regular Festiniog stratification. There are several slate quarries beside the above worked in this district, which are not on the vein alluded to. The next slate and slab vein, and also the last regular vein, is the Abercorris and Aberllyfenni Quarries; this vein differs in cleavage, joints, quality, and colour to those before mentioned, but there is a slight resemblance in the position to the Festiniog vein, only the dip is not so great; the split is also vertical, while at Festiniog the split follows the dip of the vein. The principal veins I have described are different in so many points and position, that it is necessary to work them on a distinct system. The position of the Cambrian vein being perpendicular, requires all quarries on this vein to be opened on the same method—that is, the top soil to be cleared on both sides of the opening, and continued doing so as the quarry extends; if this is not done the pressure of the unremoved soil will cause an overthrow, for the opening would not bear the burden on the side of the rock. It requires a man who thoroughly understands the slate stratum to make a successful operation on this vein; with proper knowledge, a trial may be made by a sink and tunnel—this would prove the nature of the ground; after this it comes to a matter of calculation. In some places on this vein the appearance of the surface warrants what may be expected below; in other cases this may prove contrary to expectations. On account of some unforeseen dykes and spurs also, there are places on this seam where the surface is covered with clay and gravel, the outward appearance of which shows no indication of slate, only that it is situated on the stratification; in this case sinking and tunnelling are the only modes of proving the ground; an experiment in this manner may be made at a very little expense by a man who possesses good judgment of the place. Deficiency in these precautions is the great error committed by capitalists in opening and clearing places where no slate vein exists; such mistakes have been ruinous to many, in consequence of entrusting the management of the openings to a London, Manchester, or other gentleman, who perhaps had never seen a slate quarry before; the failure of this class of men is generally attributed to the quarries and locality, when, in reality, Wales, nor the practical men of Wales, had never been concerned in such blunders and destruction of property. It is also of importance in opening a slate quarry to know the position of the rock, as this is the foundation, to form plans, to prove the ground, to know the quality and value of the concern; this point ought to be carefully examined, as in all matters of slate speculation calculation must be the principal theory before bringing quarries into the market, and capitalists ought to look into the correctness of it before trusting their money upon such speculations.

The first thing in quarry calculation is the ground, to ascertain if the situation is on one of the principal veins before mentioned; then the quality, the extent, and position, the requisite expenditure, the expense of carriage to a railway or shipping port, and the return of produce. On the vertical stratum, when the ground has been fairly proved, the top soil must be cleared so many yards in length, width, and depth before any slate can be expected; then a gallery must be formed—this will generally indicate a favourable or an unfavourable prospect of the quarry; if the former, some good horizontal points will appear connected with what we term “backs” with the proper joints alluded to, the rock improving and getting firmer as the depth increases; some slates can soon be made, even from the second gallery, so the general average of opening a new quarry is clearing the top soil, sinking and opening a second gallery; when this is done to a certain extent, this gallery might produce some inferior slates, the value of which in the market would realise more than what has been paid for the manufacturing of them. In some instances I have found the second gallery producing more slates in value than the expense of removing the top soil and forming the gallery, but generally time and capital are requisite to form a proper system of working a quarry. When the second gallery is formed, so as to admit of a third gallery, then the latter will allow a fourth gallery, &c. Now it comes to a point of a profitable or an unprofitable concern. When these galleries are properly formed and prospects good, slates can be manufactured at the following prices:—

Emperors—26 x 16,	manufactured at £1 12	6 per 1000,	sold at £13 0	0 per 1000.






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from 5s. to 60s. per yard; opening from 3s. to 10s. per yard; the carriage of slate to a shipping port averages from 4s. to 10s. per ton. With the prices of labour, &c., an estimate can easily be formed of the average amount of capital and the probable return of produce. The selling price of manufactured slates amounts to 50s. per ton, or thereabout; taking into consideration that every cubic yard of rock will weigh 2 tons, or near that, of slate, we clearly find that one small concern, if it is pure, is unsurpassed in value. A surface of 100 square yards of solid rock, and that 100 yards in depth (of this there has been a proof made), by multiplying the above figures will show 2,000,000 tons of slate blocks within the area mentioned, independent of the extent of the vein downwards beyond the 100 yards alluded to. The average I lay before you is small in comparison to many quarries that are now worked in Wales; I could name such openings as before specified to the extent of 1000 and 2000 yards. But let it be understood I have never seen a quarry opened that is all pure slate rock, yet we often find some much better than others. Slate is similar to the mineral lodes in this respect, for in these, whether in large or small quantities, is found more or less waste and refuse mixed with the ore. Although sometimes a solid cluster of copper or lead may be discovered with very little waste, generally these lodes are mixed with refuse; I find this to be always the case with slate quarries; in one part an extensive vein is discovered with comparatively very little refuse, when the same vein in another locality is full of waste, so that the produce is not within 100 per cent. to the former place. I also find in the Cambrian stratification that the vein is larger and more pure eastward than it is westward.

The extreme east is the Hon. Colonel Pennant's quarry, but westward of this we find small and irregular concerns. The largest vein at the Bethesda Quarry is the one known at Nantlle Vale by the name of the New Cae Gilgwyn Penyrosedd Quarry. The south vein at this quarry is the north vein at the Bethesda Quarry; this seam is also worked at Bryn, and other quarries in the neighbourhood of Bethesda. The great vein of the Llanberis Quarry we find at the old Penyrosedd Nantlle Vale. The above assertions on the veins have been proved by a very minute examination of the strata, colour, spots, and strips. Westward of the above principal vein at Nantlle Vale, and on the opposite side of the lake, are several small concerns, the produce of which is a sufficient foundation for my remarks about this vein westward. On the east of the above valley is the Penyrosedd Quarry, which has been extensively opened, and, as I before mentioned, bears great resemblances to the Bethesda and Llanberis Quarries, in the extent of ground, the stratum, joints, colour, split, and quality, the facility of opening and working, and the regularity of the vein. There are quarries on the boundary of Penyrosedd extensively opened, and paying good profit. But westward of the above quarries, and on the other side of the lake, I find the same veins are so irregular and broken by eruptions, that so far they are very unpromising of ever being profitable concerns, although capitalists have and are still spending an immense amount on this westward seam, with only seeming most indifferent prospects. In finishing my remarks on the Cambrian stratification, I may say that, with all the difficulties we have to encounter in slate speculations, take it as a general rule, a slate quarry is easier to form a correct opinion of as to its being a profitable concern than any other vein. The body of slate is so extensive in comparison to the other lodes. Slate may be also worked with so much less capital than the metals. With practical management, cautious and proper attention, speculators may make their fortunes in the Welsh slate quarries.

The slate trade is too well known to make any remarks upon. The number of slates that are manufactured per annum are not nearly sufficient for the demand in the market. I am informed that some quarries have booked orders for 40 to 60 weeks to come. Orders for slate are sent from all quarters of the globe; large numbers are continually shipped to Russia, France, Spain, Germany, Denmark, Prussia, Austria, and America, although the sale to the latter place has not been so good within the last two years. In consequence of the enormous demand the prices have advanced several times; and if they were raised 15 or 20 per cent. again the sale, in all probability, would not be affected, as there are so many new markets continually opening. I can only say that the slate quarry proprietors and merchants are reaping a fine harvest. It is seldom we hear of a slate merchant being bankrupt, but to the contrary. The prices of slates are generally uniform throughout the principality. The alteration in terms is arranged at the principal quarries—the others follow the same rule, only in some instances the small concerns charge extra percentage. If the slate makers and labourers continue to demand more than their usual wages I have no hesitation in saying there will be another advance in the price of slates. The average wages of the men are—slate makers from 16s. to 20s. per week; labourers from 14s. to 18s. per week. Miners, 15s. to 18s. per week; engine-drivers, smiths, and carpenters, from 16s. to 24s. per week. Each slate maker is capable of manufacturing about 6s. to 8s. worth of slates per week.

CAMBRIAN ERYS.

#### THE SLATE QUARRIES OF GREAT BRITAIN.

SIR.—Having read an article in the Journal a few weeks since, treating of the important subject of the Slate Quarries of Great Britain, I venture to offer some observations, as a practical mineralogist, which may tend to modify the strictures made on Cornish slate; and I am the more induced to address you on this point, because I feel confident that your well-known love of fair play will induce you to give publicity to all that can be stated on both sides of the question. Surely, it is quite a modern discovery that the Cornish slate from the Delabole district is brittle, or the loss by breakage very great; and I never heard till now that the split, or cleavage, was inferior to that of the Welsh slate. Again, is it a fact Delabole slates are heavier than Welsh slates of the same size? They are stronger and more compact in their texture, so that they stand the weather better than Welsh slate; and, in fact, they have been tested, and proved to be 25 per cent. stronger than the best Bangor slate, but I doubt if they will be found much heavier than Welsh of the same sizes. All geologists who have written on the qualities of the slate from the Delabole district (which will include Old Delabole, North Delabole, West Delabole, and Trewarmett Delabole Quarries) have concurred in ranking these slates as the finest in the world for toughness, strength, and durability, and they particularly notice their lightness. Sir Henry T. De la Beche, F.R.S., &c., Director of the Ordnance Geological Survey, in his report on the Geology of Cornwall, published by order of the Lords Commissioners of Her Majesty's Treasury, pp. 503, 504, says—"The Delabole Quarries have been long celebrated for producing a beautiful and durable material, combining considerable lightness with strength; the flag stones, or struck slates, from these quarries are highly esteemed; they are exceedingly durable, and not liable to be damaged by frost." Bishop Watson, in his Chemical Essay, vol. 4, p. 319, writes thus—"We learn from Dr. Borlase, that the grey-blue slate of Delabole, in Cornwall, weighs only 2512 ozs. per 100 feet, which is greatly less than the lightest Westmoreland slate that I have met with. This Cornish slate, from its lightness and endurance of weather, is generally preferred to any in Great Britain, and is, perhaps, the finest in the world." And so long ago as the year 1602, Carew, in his "Survey of Cornwall," speaking of the Delabole slate, quaintly describes it thus—"In substance thinne, in colour faire, in weight light, lasting, strong, and generally carrieth so good regard as (besides the supply for home provision) great store is yearly conveyed by shipping both to other parts of the realm, and also beyond the sea into Britannie and Zetherland." It is a long step from 1602 to 1850, yet for two centuries and a half Delabole has held its good repute against all the world; for in the latter year Prof. Marsh, F.R.S., &c. (Faraday's Lectures at the Royal Military College, Woolwich), writes—"The best covering slate in Cornwall, or, perhaps, in England, is procured at Delabole, nearly two miles south of Tintagel, in the north part of that county; the colour is grey-blue, and the texture is so close that it will ring like a piece of metal when struck." And in 1855, Prof. Allen Miller, of King's College, London, after making a comparative analysis of the slates from the Trewarmett Delabole and the Old Delabole Quarries, found the two slates to correspond almost exactly in appearance and properties, the Trewarmett being rather the lightest of the two, very compact, and non-absorbent in texture (a small cistern made of this slate was found after a week's immersion in water to have increased in weight only 1-393d part) and possessing great power of resisting the action of frost. After such a weight of evidence in favour of Delabole slates, it may seem unnecessary to add that the London dealers will take ten times more than can be raised in the district, and at prices as high as the best Bangor slates can command. But it is objected that Cornish slates are sometimes made across instead of in the direction of the grain. I am aware that in some slate this would weaken its strength; but it is notorious that the slates taken from the Delabole district possess nearly an equal strength both ways, which gives them a preference over all other slates, because the manufacturer can cut them to any size, without regard to the direction of the grain.

Having said so much for the slate itself, allow me to correct an impres-

sion (which the article I have mentioned is likely to convey) that there are no mountains of slate in Cornwall. The North Delabole, in the parish of Tintagel, is one mountain of slate rock; and from this, a few hundred yards across the valley, you strike the Trewarmett Delabole ridge, where the best class of roofing slate can be manufactured within 5 feet of the surface, with a valley 300 feet deep for the deposit of the waste or spoiled; whilst at the West Delabole Quarries the whole cliff, which is 400 ft. high, displays veins of the finest slate, which are worked without pumping or hoisting, at a cost infinitely cheaper than any quarry in Wales. There are quarries now at work in the Delabole district paying over 30 per cent. profit on the outlay, and the Old Delabole lands contain beds of slate which have never yet been broken, and which will remunerate the proprietors over 40 per cent. for working. The North Delabole has for many years past paid the proprietors over 30 per cent. profit; and the Trewarmett Delabole, in the hands of its present owner, and under the present system of management, cannot fail to return ample profits. All these quarries ship their yield of slate without difficulty at Port Gavern or Boscastle, the freights from which ports to London are less than from Bangor—a pretty good criterion of what shipowners think of the dangers of the coast.

I conclude by assuring you that I have no interest whatever in this controversy between Welsh and Cornish slate; only in justice to one of Nature's gifts, as discovered and abounding in the north or Cornwall, are these lines penned, and the facts herein stated submitted to your impartiality to be made public.

A MINERALOGIST.

#### LEGITIMATE MINING IN CARDIGANSHIRE.

SIR.—In my last letter I did not say one word about Mr. Warington Smyth.—I did not even allude to him in any way, and yet Mr. Matthew Francis, with all that fairness and honesty he has shown throughout this controversy, asserts that I "keep harping on [this] one string—Mr. Smyth said so and so in his book." I ask your readers, Sir, if this system of misrepresentation is honest? if it should be tolerated in a discussion on questions of scientific and practical importance? How is it that this dispute has dwindled into the solitary question of trap? The answer is simple—Mr. Francis has failed to meet the charge I have brought against him. He has not ventured to deny that his report of the Havan Mines is imperfect, vague, inaccurate, and "unscientific." He has not ventured to support the groundless accusations he hurled at "C. T." He has not ventured to prove the fearless assertion he made, that the share lists of all the mines he is connected with are filled. But, firm in the grip of his own trap, he strives to divert attention from the main points at issue to one which is comparatively of little moment. I take it that there is no defence, and judgment then goes by default. All I have to do, under these circumstances, is to repeat the charges I deliberately made against Mr. Matthew Francis, and which I have proved by conclusive evidence. I again challenge him to try the issue before the bar of public opinion. I have, however, one word to say about this wonderful trap. I maintain that Mr. Francis does not know what trap really is, because he uses the word as synonymous with porphyry, hornblende, and other igneous rocks; and because he describes it as a hard crystalline rock. Now, it is well known that trap is a generic term, and that it includes porphyry, greenstone, &c. But I do not lay so much stress upon that as upon porphyry being described simply as a crystalline rock of great hardness. The two statements, taken together, leave no doubt on my mind that Mr. Francis, notwithstanding his very long experience, has a confused notion of the characteristics of porphyry. But, further, I maintain that there is no igneous (using the word in its widest sense) rock whatever in the Cardiganshire mining district. I make this statement on the authority of De la Beche, Ramsay, Murchison, Sedgwick, and others, including Mr. Warington Smyth. These eminent geologists have gone through the district with the utmost care, and their opinion is surely of some weight. And, I may mention here that the quotations from the "Geological Report of Cornwall and Devon," which Mr. Francis has disjointed and jumbled together, have no bearing at all on the question. It is utterly impossible to draw a true analogy between Cornwall and Cardiganshire, the two districts being widely different in many important respects. 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value—an element not much estimated in some other mines equally deserving in point of proximity to riches.—Jamaica Coffee-house.

OBSEVER.

MR. J. R. HARRIS, AND "LES GRANDES MINES CONSOLIDEES DE VILLEMAGNE."

SIR.—Some of your correspondents seem desirous of knowing why Mr. (or Captain) J. R. Harris, of Blackheath, does not continue a director of the Ely Merthyr Colliery Company, and why he has not explained to the public the reason of his severance from that enterprise. I, on the contrary, should be glad to learn why he has become a director of a company denominated "Les Grandes Mines Consolidees de Villemagne," seeing that he expresses himself desirous of being clear and above board with the shareholders and the public, and repudiating all that is ambiguous. In the first place, it is remarkable that a company, whose prospectus is in English, and its whole constitution British, should have its title in French; but, probably, it is a little bit of conceit on the part of the promoters, although it savours, to my mind, of a species of "clap-trap," which surely ought to be abhorred by such a consistent gentleman as Mr. J. R. Harris, of Blackheath.

No promotion fees are to be paid by this company, but "the vendors to have paid-up shares in equal proportion to the number issued to the general body of shareolders." The capital is 21,000 shares, of 4s. each, or \$4,000. What does this mean? If the whole 21,000 shares be taken by the public, are the vendors to have 21,000 shares, and so constitute a share capital of 42,000, in shares of 4s. each, or is the stated capital of \$4,000, to be divided between the vendors and the public? How can Mr. J. R. Harris remain a director of a project where so much apparent misrepresentation exists, and if his practice be equal to his professions, he ought unquestionably to give some explanation of this extraordinary provision in the prospectus, especially when credit is taken for having no promoters' fees, and thus implying that nothing but what is strictly for the interests of the shareholders is in any way permitted. It would be interesting to know who are the vendors of these mines, and whether Mr. J. R. Harris is one of them? Moreover, is the company, which is declared to be "limited," registered? These are points which Mr. J. R. Harris can of course explain, and if he be really anxious of being considered a consistent man he will at once do so.

AN OBSERVER.

GAS-LIGHTING IN COUNTRY MANSIONS.

SIR.—I have just read an elaborate report by your old correspondent, Mr. George Bower, of St. Neot's, upon Petroleum Gas, in which he refers to his Fitzmaurice report as something differing widely from Malam's report, invented forty years previously, though I must say that the sole difference that I can discover is that the one was applied to the distillation of coal, and the other to the distillation of cheap oils, not then discovered. Mr. Bower states that it has been the common practice in making gas from oil to fill retorts with coke, broken bricks, or any material which will give surface, and the oil has been dropped or run into them, or made to traverse through them; but this seems to be a very effective way of absorbing the carbon, to which all gas owes its luminous property. The result of a great number of experiments has made me determine that a high heat with a large surface is the very worst plan that can be adopted for making gas from oil; but that in order to get the best results, a moderate heat—dull cherry red by daylight—and the double form of retort without anything in it, give the best results; not for volume of gas, but for quantity of light; in other words, there is more light from 80 cubic feet of gas produced in accordance with the latter plan from the gallon of oil, than from 160 feet produced according to the former mode from the same quantity. The test of the apparatus is the same as for ordinary coal, excepting that no purifier is required; but the condenser has double the surface of that for coal, on account of the rapidity with which the gas is evolved. A meter to measure the quantity of gas produced, and a gas-holder, complete the apparatus.

I quite agree that oil gas has the advantage that it requires no purification, owing to its being absolutely free from impurities, but I deny that Mr. Bower's Fitzmaurice report has any advantage over Malam's; and I deny, also, that the private consumer can obtain petroleum oil, of 805 spec. grav., at 1s. per gallon. The cost would more nearly approach 1s. 6d. or 2s. per gallon, so that the cost would at least be 35s. per 1000 cubic feet, instead of 1s., as Mr. Bower estimates. He says the daily cost of petroleum oil gas, when made to supply 100 lights burning for six hours, each light being equal to eight candles, is as follows:—

15 gallons of oil, at 1s.	£0 15 0
Coke to heat the retorts, 3 cwt., at 1s. per cwt.	0 3 0
Labour—part of a lad or man's time.	0 1 6
Wear and tear.	0 0 2
Interest on capital.	0 0 4
Fund to maintain plant in perpetuity.	0 0 6

Nett cost of 1200 cubic feet. £1 1 1

This 1s. 1d. he estimates to be five times the cost of gas made on the same scale. This is not exactly correct. The gas I make in one of Mr. Bower's retorts from coal costs me nearly 1s. per 1000 cubic feet; and yet I unhesitatingly say that Mr. Bower's apparatus is the best I have ever used. Coal gas cannot be made by the private consumer under 1s., per 1000 cubic feet, under favourable circumstances, or if it can I shall be glad to learn from Mr. Bower where the economic process is to be seen—except in his own factory or worked by his own men.

If Mr. Bower be correct in stating that "1 foot of oil gas will give the light of 3 feet of ordinary coal gas, and though gas, under very high pressure, loses some of its luminous qualities, yet it may be condensed at 15 atmospheres, and thus become perfectly portable; so that beginning with a gas of three or four times the illuminating power of common coal gas, and condensing a given volume into a sixteenth of its bulk, there is in this fact alone a large field for the use of oil gas for the lighting of railway trains, ships, private carriages, and country houses, where it may not be feasible or policy to erect small gasworks for the supply of gas at ordinary pressures," gas would be more generally used. But gas manufacture is not an occupation for ordinary domestic servants; and although you may get gas at 5s. per 1000 cubic feet for a single hour, you will find that it costs you 1s., per 1000 to burn, taking a month's supply. I agree with Mr. Bower, that as "the illuminating qualities of 1200 cubic feet of oil gas are equal to about 3500 of ordinary coal gas, the oil does not compare very unfavourably, when everything is taken into consideration, so that if the gas be required only for lighting purposes, and not for cooking or heating (for which it is totally inapplicable), then there are very many who will doubtless prefer paying a high price for oil gas, in order to get a light which is absolutely pure, and which, though not nearly so cheap as ordinary coal gas, is nevertheless infinitely cheaper than oil, tallow, or wax, as ordinarily burnt, and without their inconveniences," and I simply differ from him in the price at which the private consumer can burn home-made coal gas.

I shall try home-made petroleum gas, as Mr. Bower speaks so favourably of it; but I shall use a retort either of Malam's form or a simple D-shaped tube, instead of a Fitzmaurice, which I consider costly and unnecessary. On some future occasion I will let you know the cost at which the oil gas is obtainable.

A. YEOMAN.

DISCOVERY OF GOLD IN SCOTLAND.—Up among the Hartfell Hills, near Moffat, and about Dobb's Linn and Meggett Water, several small "finds" of gold have been made recently; one nugget, weighing about 6 lbs., has been publicly exhibited.

BRITISH COLUMBIA.—A letter from Victoria (June 22) says—"A class of great interest and of the highest importance to the country is now beginning to appear on the scene from time to time—gentlemen of practical mining knowledge, mining agents, representing English capitalists, as well as working miners from Cornwall and Wales, have lately arrived, and are travelling over this island and British Columbia in search of ores of gold, silver, and copper, and one of these has made arrangements for working a copper mine in Vancouver Island. The learned societies of England have also sent out agents on scientific missions to examine both countries. They will find here a wide and interesting field for the pursuits of the natural sciences, and their reports will dispel much of the misrepresentation spread abroad by disappointed adventurers, who saw everything through jaundiced eyes."

CANADIAN GOLD DIGGINGS.—It will scarcely be credited that we have a California almost at our doors; yet it is nevertheless a fact that in the Seigniory of Vandeleur, and on the tributaries of the River Chaudiere, about 50 miles from Quebec, gold is found. One nugget of pure gold, worth \$18 per oz., and weighing 1½ lb., was picked up in the bed of one of these streams, which at this season of the year is almost dry. Another nugget, weighing 9 ozs., and also pure, from the same region, was disposed of in town this week. It is said that about \$20,000 worth of gold has been gathered there this season. One man, residing near the locality, has in his possession a gallon measure full of the precious metal, in pieces of all sizes. Since the golden news has leaked out, people have been flocking to the diggings in crowds.—Quebec Mercury.

THE ONLY EMERALD MINES IN THE WORLD.—(By a South African Traveller).—"I was on my way from Bogota to the coast of the Caribbean Sea, to make a visit to the United States, when I determined to deviate somewhat from the route which I had laid out for myself, to make a visit at the house of a friend, who was in the Emerald Mine of Muzo. It is not generally known, I believe, that the place which I was approaching is the only spot in the known world which yields the true emerald. There are other green stones possessing a considerable degree of clearness and transluency, with sufficient hardness and fineness of grain to admit of a good polish; and some of these bear the name of emeralds, especially such as come from the gold mines of the Ural Mountains in Russia. But it is sufficient only to place such by the side of one from Muzo, to discover their inferiority, which is fully confirmed by analysis.

Among the wild, rocky scenes through which I had so long been passing, I stopped one day, having arrived at the house of my friend. And a truly hospitable reception did I meet with. After sufficient rest and refreshment, we proceeded to the emerald mines.

As we approached, the face of nature showed evidence of a strange and tremendous convulsion at some long-past period of the world. Two immense rocks, opposite each other, with a deep and gloomy gorge between them, through which flows a torrent, have every appearance of having been once united. Now they stand entirely separate, and both sides display corresponding strata of different characters, which seem as if ready to be again united, if they could be brought together. Veins of light colour, composed of lime-slate, were seen here and there, which form the matrix or bed of the emeralds; and a little experience is necessary to enable an observer to discover the precious stones. I believe it is a slight tint of green, which shows the part of the vein in which they are deposited. Caution and skill are then required to uncover and cut out the emeralds, without destroying or injuring them. Here and there I observe spots of the most brilliant grass-green, dispersed in the veins, and eagerly enquire whether they could have escaped the eyes of the miners. "No, no," replied my friend, "we know them well; they are good for nothing." "But," said I, "they have all the colour and brightness of the true emerald." "True," returned he, "but they are ruined by flaws, and are unfit for cutting." I then examined them more closely, but could not convince myself that they were not stones of great value. "You admire them," remarked my friend. "You shall have as many such as you choose to take with you. I will give you some of real value also; and when you reach the United States, if you do not understand the difference, the lapidaries there will tell you." This I afterwards found to be the case. I had always admired emeralds; but I think that the appearance of those which I saw in their native bed, seemed to me superior in beauty to any I had seen set and polished by art. The emerald mines of Muzo are the property of the Republic of New Granada, and are rented for a term of years to persons who work them. Sixteen thousand dollars is the sum which is now paid for them annually. It is believed that they have been profitable to the present lessee, but, as the number and value of the gems taken out are unknown to the public, the question is one of mere conjecture. Under the Spanish Government great quantities of emeralds were taken from the mines of Muzo; but so carefully were they guarded, that the precious stones derived from them were generally believed to come from Peru, where, in fact, there are no emeralds. To prevent a fall in price, the mines were for a time closed. After the revolution, Bolivar gave the rent of them to San J. T. Paris, a distinguished patriot, who enriched himself by working them, and left a large fortune to his son. On the expiration of the term of the contract another was made with a German house in Bogota."

THAMES TUNNEL COMPANY.—Receipts for the week ending August 8, £5. 11s. 7d.; number of passengers, 13,839.

Mining Correspondence.

BRITISH MINES.

ALLY-Y-CRIB.—J. Hughes, Aug. 10: In the deep adit, driving west by four men, towards the junction of the south counter, the lode is looking promising, with some water coming from the breast; the lode is composed of clay-slate, carbonaceous lime, spar, and stones of lead occasionally. I hope soon to reach the junction of lodes, where I expect to have a regular course of ore, with great height of backs to work for years. The tributaries on the back of the hill are at work as usual; they have 6 tons cut or thereabouts; in a few weeks I expect they will have 10; that we may have a small sample to send off.

BAGTOR.—W. Hosking, Aug. 13: The sinking of the western engine-shaft is going satisfactorily, and is set to nine men, at 10f. per fm.; the lode here, though not yet rich, is certainly improving as we gain depth, and is now producing more tin than when last reported on. The 16 end, driving west from Prosper engine-shaft, is also improved; driving in very cheap ground, being set to four men, at 3f. per fm.; the lode here is about 2 ft. wide, and producing some very rich work for the stamps.

BALDWIN (Isle of Man).—M. Gross, Aug. 4: I repeated my inspection of the Baldwin Mine on Saturday last. The bottom cross-cut, driving south towards No. 3 lode, has come into a stiff blue clay schist, which has much impeded the progress of this driving, but trust this will soon alter for the better; the character of the ground is most congenial for ore, and such as might be expected to produce large quantities, but, of course, this cannot be looked forward to until No. 3 lode is intersected. In the north cross-cut the ground is of a similar character, but more mixed up, with branches of spar, by no means a bad indication; it also issues a strong feed of mineralized water. In a line, and opposite the old arch level, a drain has lately been cut for the purpose of preventing water from percolating into the mine; in this operation the back of No. 1 lode is to be seen, it consists of beautiful mineralized float, mixed with muriatic, sulphur, and spar, and spots of lead ore; in fact, a more promising lode cannot possibly be found so near to the surface, and I consider this a most important point to drive at, and for this purpose I would recommend driving the north cross-cut with all possible speed.

BEDFORD CONSOLS.—J. Mitchell, Aug. 13: In the middle adit level east, on the north lode, we have intersected another small cross-course, underlying east, and running opposite with the lode, which is in a discordant state for the time, but I hope to see it improve as we get off from the influence of the cross-course.

BEDFORD UNITED.—J. Phillips, Aug. 11: The lode in the 130 east and west is unproductive. The steps in this level west are yielding 4 tons per fm. The lode in the 115 west is 18 in. wide, producing stones of ore. Rundie's and Lang's steps, in this level, are yielding 4½ and 4 tons per fm. The lode in the 103 west is 18 in. wide, producing stones of ore. The steps in this level are worth 2 tons per fm. There is no alteration in the 90 west. The steps in this level are worth 2 tons per fm.

BOSCAWEN.—T. Trelease, R. Giles, Aug. 11: The lode in Hunter's shaft, sinking below 10 fms. is 1 ft. wide, producing good stones of copper ore, of a more promising character. The lode in the 70, driving west of said shaft, is 1 ft. wide, yielding a little copper ore, but not of much value; the lode in this level, west of Kiteloe's shaft, is 3 feet wide, containing stones of ore. The lode in the 60, west of Hunter's shaft, is at present small and poor. The lode in No. 2 winze, sinking below the 50, is 18 in. wide, worth 18f. per fm. Sampson's lode in the 30, east of John's shaft, is 20 in. wide, saving work, of a kindly appearance. No lode yet intersected in the cross-cut south at this level.

BOTTLE HILL.—J. Eddy, Aug. 11: The 12, east of shaft, on south lode, has been driven about 8 fms.; the lode in the present end is composed of spar, capel, and tin, 3 lode, below the 70, is 1 ft. wide, producing good stones of copper ore, of a more promising character.

The lode in the 70, driving west of said shaft, is 1 ft. wide, yielding a little copper ore, but not of much value; the lode in this level, west of Kiteloe's shaft, is 3 feet wide, containing stones of ore. The lode in the 60, west of Hunter's shaft, is at present small and poor. The lode in No. 2 winze, sinking below the 50, is 18 in. wide, worth 18f. per fm. Sampson's lode in the 30, east of John's shaft, is 20 in. wide, saving work, of a kindly appearance. No lode yet intersected in the cross-cut south at this level.

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shaft; by two men, at 8d. per fm. The 75 to drive east of fast-rod shaft by four men, at 7d. per fm. The 18 to drive east of the cross-cut by four men, at 8d. per fathom. The 30 cross-cut to drive south by two men, at 9d. 10s. per fm. The 35 to drive east by six men, at 7d. per fm. The old engine-shaft to sink below the 20 by nine men, at 25s. per fathom. The 40 to drive east, on the engine lode, by two men, at 7d. per fm.

—T. Givnall, Aug. 12: In the 35, driving east, the lode is 3 ft. wide, mixed throughout with copper ore. In the fast-rod shaft the lode is 5 ft. wide, worth 10d. per fm. for tin.

WHEAL VLOW.—J. Tonkin, W. Johns, Aug. 10: In the shallow adit east we have not yet intersected the lead lode; the men have been prevented working part of the month by the timbering giving way and filling the level with stumps; we hope to cut the lode this month. In the deep adit east the lode is still in an unseated state, and not of much value. We have completed cutting down the engine-shaft from surface, and have put the men to divide and case it, which will be completed in about three weeks; we shall then drive the tinstuff now broken, about 70 tons, and commence sinking the engine-shaft in the tin ground below the deep adit, by six men. In the west part of the mine, at Wheal Whidden, we have two men and two boys raising good tinstuff from the shallow adit, and as soon as they have cut down the sides of the level we shall drive the end, and put two pairs of tributaries to work in the back and bottom of the level. We have commenced making tinstuff at the engine-shaft, at the proper level to supply the stamps. We expect the engine-house will be completed by the end of this month, we shall then begin to lay out our dressing-rooms.

WHEAL UNITY CONSOLS.—W. H. Reynolds, Aug. 11: The lode in the 40 west has improved to 1/2 ton of copper ore per fathom, and there is still a good lode in the 40 east. The 30 fm. level ends are grey, and have a promising appearance.

WHEAL UNY.—S. Coade, M. Rogers, Aug. 8: The Tin Lode: The lode in the 100, west of engine-shaft, is worth 16d. per fm. for tin. The 60, west of incline shaft, is worth 6d. per fm. The 80, east of engine-shaft, is worth 6d. per fm. The 60, west of incline shaft, is worth 5d. per fm.—Copper Lode: The lode in the 58, west of No. 3 shaft, is about 20 in. wide, and of a very promising appearance, composed of quartz, mica, and rich stones of copper ore. The lode in the 58, east of No. 3 shaft, is worth 20d. per fm. The lode in the winze sinking below the 48, east of No. 3 shaft, which is coming down 4 fms. behind the 58 fathom level end, is worth 12d. per fm. The lode in the 48 fathom level, west of new engine-shaft, is about 8 in. wide, producing stones of copper ore, but not to value.

YARNER.—R. Barkell, Aug. 12: The cross-cut at the 50 is progressing favourably; the end is letting out more water, and the ground is still looking favourable for copper. There is no alteration in either of the stopes, each yielding about 2 tons per fathom.

#### STANNARIES COURT.

The quarterly sittings of this Court commenced at Truro, on Wednesday, before his Honour the Vice-Warden, Mr. E. Smirke. The following business was disposed of:—

PAINTER v. VOYLE AND OTHERS—EAST ALFRED CONSOLS.—This was a purser's petition against James Voyle, of Manchester, Richard Michell and T. M. Eustice, as shareholders in the above mine, for recovery of calls. Mr. Stokes moved as against Michell, who owed 60s. 19s. 7d., and Eustice, who owed 5s. 15s. 10d. On the usual affidavit and registrar's certificate, he moved for a decree *pro confesso* for payment.—Granted; payment to be made in seven days.

WESCOM v. BARTON AND OTHERS—PROSPECT UNITED MINES.—A purser's suit for recovery of amounts due from defendants as shareholders—from Bruton, 151s. 15s. 5d.; Venning, 60s. 1s. 8d.; Wilkinson, 12s. 9s. 7d. On the registrar's certificate, and affidavit of the purser, Mr. Marrack moved for decree *pro confesso* for payment.—Decree granted; payment to be in ten days.

SLEEMAN v. BURTON—SOUTH WHEAL LOVELL.—Mr. Marrack, on the part of the defendants, T. C. and Elizabeth Burton, moved to dismiss the petition for want of prosecution. It was a purser's petition, and when it was ripe for hearing, the plaintiff, through his attorney, countermanded it, and filed a general petition for winding-up the affairs of the mine under the Companies Act, 1862. Mr. Marrack submitted that under those circumstances he was entitled to the dismissal of the purser's suit, and to his costs therein, the latter being the object of his application.—Mr. Chilcott, for the plaintiff, showed cause against the application. He contended that the moment the order for winding-up was made the previous purser's suit was stopped, by the 202d section of the Act. He also quoted the 201st section in support of his argument; and submitted also that the application for dismissal and for costs was premature, as it could be shown defendant owed a large sum of money to the mine, in which case his costs could not be allowed.—Mr. Marrack remarked that there might be various defences against the claim if the purser's suit were proceeded with. He moved in the case chiefly to decide a matter of precedent.—The Vice-Warden said he would consider the application.

OLD TOLUG UNITED.—In the matter of winding-up this company, Mr. Marrack moved for an order to serve three contributors to settle the list, those persons being resident beyond the jurisdiction, in Scotland and Ireland.—Granted.

CATHEDRAL MINING COMPANY (Gwenwynn).—Mr. Stokes appeared in support of the petition for winding-up this company. He stated that the petitioning creditor was a Mr. Cox, who had proceeded in the usual way by creditor's petition against the machinery and materials, had obtained a decree *pro confesso*, and then for sale; but, upon the registrar endeavouring to take possession, neither ore nor materials could be found. The plaintiff then proceeded under the Winding-Up Act, and his petition contained the usual allegations—among others, that there had been this customary decree, and that the debt remained unsatisfied. The petition was served personally on Aug. 1, on the principal agent of the mine, Joseph Webb, of Redruth. It had also been advertised in the newspapers, as directed by the Court. He now moved for an order for winding-up the mine.—Mr. Chilcott said he was instructed by Mr. H. E. Nichols to oppose the application, but he was at present without either affidavit or witness, and, therefore, could not say much in the case. He wished to state, however, that there was a fatal objection to the petition, which was that there were not seven shareholders in the mine at the time the goods were ordered. Mr. Nichols was the sole shareholder, and he tried to form a company, but, failing to do so, he in December last sold the mine to a Mr. Macmillan who had also been trying to form a company.—Mr. Stokes pointed out that in the prospectus of the mine there were five directors named, which did not look as if there was only one shareholder in the mine. The case was then adjourned till Monday, for the arrival of affidavits or witnesses.

CARN VIVIAN MINE (Warleggan, near Bodmin).—This was another petition for winding-up under the Companies Act, to which there was no opposition. Mr. Chilcott showed that the petition had been advertised in the newspapers, as ordered, and had been served upon James Folliott, the manager of the mine.—The order for winding-up was then granted.

HUNTINGDON MINING COMPANY.—Mr. Chilcott said this was also a petition for winding-up under the Act. The mine was situated in the parish of Dean Prior, Devon, and ceased working in 1861. There was no opposition in the case. He showed that the petition had been duly served and advertised, and said that as the debts of the contributors were rather small, he had affidavits to show that there were other considerable debts due. He asked for the usual winding-up order, and it was granted.

The Court was then adjourned.—*West Briton*, Aug. 14.

NEW PORTABLE GAS FURNACE.—We have lately had an opportunity of witnessing the action of a new portable gas furnace, invented and patented by our townsmen, Mr. W. Gore. As this furnace appears to us far to exceed anything that has previously been done in this direction, we cannot doubt that a description of it will prove interesting to our readers, to whom the invention is likely to be of more practical value than to any other community in the kingdom, and probably in the world. The general features of the furnace are as follows:—It produces a "white heat" by means of ordinary coal gas and atmospheric air, without the help of bellows or tall chimney, and the melted substances are at all times perfectly accessible without chilling them or interfering with the action of the furnace; and if the crucible breaks the melted substances fall, without loss or injury, into a dish beneath. This is an important advantage to workers in gold and silver. The furnace is simple in construction, safe in use, portable, requires no brickwork erections, and may be used in any situation where gas is available. It is set in action simply by lighting and adjusting the gas, exactly as in an ordinary gas lamp, and requires no further attention. It consists essentially of two open cylinders of fire-clay, one within the other, the outer one being much thicker and a little taller than the other; and a gas-burner of very peculiar construction placed at the bottom of the interior cylinder. The crucible is supported inside the interior cylinder, near the top, by three projecting pegs of fire-clay, forming part of that cylinder. The outer cylinder is covered by a moveable plate of fire-clay, which has a hole in its centre for the introduction of the crucible and materials, that hole being closed by a clay plug, with a small hole in it for stirring or examining the melted substances. The burner consists of an upright metallic tube, open at both ends, deeply corrugated at its upper end, so as to present the appearance of a star of numerous radiations, and the corrugations diminish gradually to nothing at about half the length of the burner downwards. Gas is admitted into the lower end of the burner by a common gas tap; if there mixes with a large quantity of air, and the mixture rises upwards; the flame commences at the top of the burner, and burns with great intensity within the inside cylinder to the height of the crucible; the heated products of combustion pass over the top edges of that cylinder, then downwards between the two cylinders, and into the chimney through a hole in the side of the outer cylinder near the bottom. The outer cylinder is enclosed within a sheet-iron casing, which has a chimney 8 feet high attached to it, and is supported upon three iron legs, making the whole apparatus portable, and capable of being used either in a workshop or in the open air, as may be desirable. The various clay portions of the furnace may be used without injury to the action of the furnace until they are completely worn out, and the arrangement is such that they may then be replaced by new ones with perfect facility. Several sizes of the furnace are manufactured. The first and smallest size consumes 25 cubic feet of gas (value 13d.) per hour, and is suitable for assayers, jewellers, analytical chemists, experimentalists, dentists, and others. It is capable of fusing 8 ozs. of copper, or 6 ozs. of cast-iron; copper begins to melt in it about twelve minutes from the time of lighting. The second-sized one consumes about twice that quantity of gas, is suitable for manufacturing jewellers generally, and for a great variety of practical persons who require to melt small quantities of gold, silver, copper, German silver, brass, cast-iron, glass, and other substances, or require a small crucible heated to high temperatures. It is capable of melting 45 ozs. of copper, or 40 ozs. of cast-iron, and with its heat up it melts 1 lb. of copper in eight minutes; copper begins to melt in about twenty minutes from the time of lighting. We understand that a still larger size, estimated to fuse 500 ozs. of copper, is being constructed.—*Birmingham Post*.

#### WEATHER PREDICTIONS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR.—In the South of England the weather has not been according to my last prediction, while in Ireland and Scotland rain has fallen since the 11th, as stated in my last letter. But one thing explains another. The present is the first drought in our changeable climate since I made my discovery, which renders it somewhat difficult for me to understand the order of such a dry period. But, to all appearance, the present drought will be of some lengthened duration. As far as I can see, there will be no heavy, soaking rains until late in September. This, at present, is the only hope I can give our farmers. This drought will, undoubtedly, prove a serious drawback to the pasturage for their farming stock. I shall know as soon as anyone when the present fine weather will break, and will give you the earliest information.

GEORGE SHEPHERD, C.E.,  
Author of the "Climate of England."

\* \* \* With this week's Journal we give a SUPPLEMENTAL SHEET, which contains—Cannock Chase, and its Coal Mines—No. II.; The Coal Mines of Bohemia; Foreign Mining and Metallurgy; Meetings of the Banty Bay (Slate and Slab), St. Ives Wheal Allen, and Worthing Mining Companies; Sales of Black Tin; Gas from Kerosene Tar and Hard Wood; File Making by Machinery—Bermot's Patent (illustrated); Casting Large Ingots of Steel; Bessemer Steel; Oil from Shale; Treatment of Poor Copper Ores for Iron; Obtaining and Applying Motive Power; Siberian Graphite; Wrought Iron Cannon; New Mode of Lighting, &c., &c.

\* \* \* With last week's Journal we gave a SUPPLEMENTAL SHEET, which contains—Copper Mining in Germany; Quantities and Value of Coal and Metals produced in the United Kingdom; Foreign Mining and Metallurgy; English and French Armour Plate Tests; Meetings—Monte Aurores (Brazilian); Great Barrier (Land, Harbour, and Mining), Silver Vein, Bryntail, and North Pool Mining Companies; Gold in Nova Scotia; London and County Bank (meeting); Entertainment to the Duke of Saldanha; Foreign Mines—Don Pedro North del Rey, East del Rey, Valgodemard, &c.

\* \* \* With the Journal of July 25 a SUPPLEMENTAL SHEET was given, which contains—Cannock Chase, and its Coal Mines—No. I.; Money Making (concluded); Foreign Mining and Metallurgy; Meetings of Public Companies; Wheal Croft, East Wheal Russell, Lady Bertha, West Chiverton, North Rosewarne, Aberffrwd, Dun Mountain, Australian Agricultural, English and Canadian, Anglo-Danubian Steam Navigation and Colliery Company; Manufacture of Iron and Steel; Oxide of Zinc as a Pigment; New Blasting Powder; Magneto-Electric Machines; American Colliery Engineering; Mineral Transport in France.

The Mining Market; Prices of Metals, Ores, &c.

METAL MARKET—LONDON, Aug. 14, 1863.

COPPER.	£ s. d.	BRASS.	Per lb.
Best selected... p. ton	98 0 0 —	Sheets	8d. 10d.
Tough cake.....	95 0 0 —	Wire	9d. 9d.
.....	95 0 0 —	Tubes	11d. 12d.
Burn Burn .....	98 0 0 99 0 0	FOREIGN STEEL.	Per Ton.
Copper wire... p. lb. 0 1 0 0 1 0 4	Swedish, in kegs (rolled) 15 10 0 —	Ditto, in kegs (hammered) 15 10 0 18 0 0	
dittos .....	.....	Ditto, in faggots.....	17 0 0 18 0 0
Sheathing & bolts... p. ton 102 0 0 —	Bottoms .....	English, Spring .....	18 0 0 23 0 0
.....	.....	Bessemer's Engineers Tool 44 0 0 —	.....
Old (Exchange) .....	.....	Spindie .....	30 0 0 —
IRON.	Per Ton.	QUICKSILVER .....	7 0 0 p. bottle
Bars, Welsh, in London.....	6 15 0 —	SPelter.	Per Ton.
.....	12 6 —	Foreign .....	18 0 18 2 6
Rolls .....	7 0 0 7 5 0	To arrive .....	18 2 6 18 5 0
.....	.....	SIM.	.....
Stafford, in London .....	7 15 0 —	In sheets .....	23 0 0 —
Bars ditto .....	7 10 0 8 0 0	TIN.	.....
Hoops ditto .....	8 7 6 8 12 6	English, blocks .....	115 0 0 —
Sheets, single .....	9 7 6 9 15 0	Ditto, Bars (in barrels) .....	116 0 0 —
Refined metal, ditto .....	4 0 0 5 0 0	Ditto, Refined .....	120 0 0 —
Bars, common, ditto .....	5 15 0 —	Banca .....	124 0 0 125 0 0
Ditto, merchant, in Tins .....	6 10 0 —	Straits .....	118 0 0 120 0 0
Ditto, railway, in Wales .....	5 15 0 6 0 0	TIN-PLATES.	.....
Ditto, Swed. in London .....	11 0 0 12 10 0	IC Charcoal, 1st qua. p. bx. 1	7 6 1 8 6
.....	.....	IX Ditto 1st quality .....	1 13 6 1 14 6
Ditto, No. 1, in Clydes.....	2 15 6 2 18 0	IC Ditto 2d quality .....	1 4 6 1 6 0
Ditto, f. o. b. in Tins .....	2 10 0 —	IX Ditto 2d quality .....	1 10 6 1 12 0
Ditto, f. o. b. in Tins .....	2 7 6 —	IC Coke .....	1 2 6 1 4 0
Railway chairs .....	5 10 0 5 15 0	IX Ditto .....	1 8 6 1 10 0
.....	.....	Indian Charcoal Pigs .....	6 12 6 6 15 0
spikes.....	11 0 0 12 0 0	In London .....	.....
LEAD.	.....	.....	.....
English Pig, ordn. soft .....	20 0 0 20 10 0	Yellow Metal Sheathing .....	p. lb. 8d. 9d.
Ditto (WB) .....	21 10 0 —	Sheets .....	p. lb. 8d. 9d.
.....	.....	.....	.....
Ditto red lead .....	20 15 0 —	.....	.....
.....	.....	.....	.....
Ditto white .....	26 0 27 0 0	.....	.....
Ditto patent shot .....	22 15 0 23 0 0	.....	.....
Spanish .....	19 5 0 —	.....	.....
.....	.....	.....	.....
At the works, 1s. to 1s. 6d. per box less.	.....	.....	.....

REMARKS.—We are unable to announce any great improvement in the Metal Market during the past week. It still assumes the appearance of inactivity. Buyers are not willing to exceed their requirements, at the same time there is every prospect of prices being firmly maintained, and the tone of our market strengthened under the auspices of an easier currency.

COPPER.—This metal continues decidedly flat; indeed, sales of manufactured have been effected at 27. under present quotations; and it is hardly probable that the late advance can be maintained unless an improved demand shortly springs up.

IRON.—A large business has been done during the former part of the week in railway bars, at 5d. 15s. per ton at the works; but during the latter part makers have demanded and obtained 6d. per ton at the works, as they are afraid of a further and more extended strike among their workmen, in which case they would, probably, have to increase their wages 10 per cent. Should this take place, merchant bars will, probably, be quoted higher. Swedish iron may still be quoted at 11d., although nothing at present offering. Scotch pigs have somewhat improved, 5s. 7d. to 5s. 9d. being the present quotations.

LEAD.—Prices remain unaltered—business limited.

TIN.—In accordance with our anticipation in last week's *Mining Journal*, the English smelters announced, on the 10th inst., a fall of 3d. per ton in blocks and bars, and 4d. per ton in refined, making present prices—blocks, 115d.; bars, 116d.; and refined, 120d. Foreign has, consequently, suffered a depreciation in value. Straits have been sold at 118d. cash, and Banca is not worth more than about 124d. to 125d. per ton, for which there is scarcely any legitimate enquiry. Consumers generally are well supplied, and it is not unlikely in a little time that a further fall will take place.

SPelter.—A moderate business has been done in this metal at reduced prices, and 18d. may now be considered the utmost holders can obtain, and at which price some few sales are reported.

STEEL continues firm, and holders are looking for better prices, as the stock at present in London is gradually decreasing.

TIN-PLATES are looking well, large orders having been given out for the American market; so that, notwithstanding the decline in the price of tin, no change may be expected at present in their value.

QUICKSILVER is eagerly sought after, but cannot be obtained for early shipment, the available stock in London being very limited.

BULLION MARKET.—Messrs. Pixley, Abell, and Langley quote—Gold bar, 77s. 9d. per oz. stand. last price; bar, fine, 77s. 9d.; bar, refinable, 77s. 10d.; Spanish doublons, 76s. 4d. per oz.; South American doublons, 73s. 9d., and United States gold coin, 76s. 2d. Silver—Bar, 5s. 1d. to 5s. 1d. per oz. stand., last price; bar, containing 5 grs. gold, 5s. 1d.; fine cake, 5s. 5d. per oz.; Mexican dollars, 5s. 3d. to 5s. 5d.; Spanish dollars (Carolina), 5s. 3d., and five-franc pieces, 4s. 11d.

NEW YORK, JULY 31.—The great change which took place in the beginning of the month in the aspect of the war, the consequent heavy decline in gold, and at one time the riots in our city, all have combined to unsettle business to such an extent that we have scarcely any transactions whatever to report during the last three weeks. There has been a general indisposition to buy, but also the same indisposition to sell at much lower prices. For



## THE EAST GREAT WORK TIN MINING COMPANY

(LIMITED), BREAGE, CORNWALL.

Incorporated under the Companies Act, 1862, with liability expressly limited to the number of shares subscribed for.

Capital £20,000, in 6000 shares of £5 each.

Deposit 10s. per share on application, and 10s. per share on allotment.

No further call for at least three months after allotment.

If sufficient capital is not subscribed, the deposits will be returned in full.

DIRECTORS.

LORD HENRY GORDON (Chairman of the Wellington Life Assurance Company), Hampton Court.

JAMES BRODHBURST, Esq., Tachbrook-street, St. George's-square, South Belgrave.

Capt. F. CORNER (Director of the Oriental Inland Steam Company).

J. HOPGOOD, Esq. (Director of the Llanwit Vardre Colliery Company), 15, George-street, Hanover-square, W.

RICHARD MOORE LAWRENCE, Esq., M.D., 22, Connaught-square, Hyde-park, W.

Major STAPLETON, Junior United Service Club, St. James's.

BANKERS.—London and County Bank, 21, Hanover-square, W.

BROKER.—Albert George Kitching, Esq., 3, Cophall Chambers, Throgmorton-street.

SOLICITOR.—A. Gledhill, Esq., 6, South-square, Gray's Inn.

AUDITOR.—James Holsh, Esq., Public Accountant, 7, Lothbury.

CONSULTING AGENT AT THE MINE.—Capt. William Hancock.

SECRETARY (pro tem.).—Charles Strong, Esq.

OFFICES.—11, WATERLOO PLACE, FALL MALL, S.W.

This company is formed for the purpose of working a very extraordinary mineral property, situated in the parish of Breage, in Cornwall, on the lands of Christopher Wallace Fowles, Esq.

It is immediately surrounded by mines that have returned millions of pounds sterling to their fortunate shareholders.

It appears at first sight perfectly wonderful, that a piece of ground containing such marvellous wealth has been idle for so many years! This singular circumstance is, however, explained by the fact that the lord's mineral agent, being the occupier of the land, used all his influence to defeat the numerous and constantly-repeated applications for a grant. Capt. Semmens says:—"About 30 years since I tried myself to obtain the soil, but like others, failed."

The recent death of this person has now removed the difficulty referred to, and this property has been secured by the directors, and they believe that such a splendid investment was never yet offered to the public. They feel justly proud in having obtained such an extraordinary valuable piece of mining ground, second to none in the country.

This magnificent property is situated to the east, and adjacent to, Great Work Colliery, that has since returned upwards of £200,000. It adjoins the celebrated Godolphin Mine, that has since returned upwards of £200,000; and the principal lodges of these splendid mines run into and intersect in East Great Work. The importance of the junction of these lodges to this property cannot be too highly magnified. It is well known that where lodges intersect a great deposit of mineral occurs. Thus, the intersection of these rich lodges in East Great Work cannot fail of making it a huge basin of tin. The lodges, after leaving East Great Work, run into Great Wheal Vor, and have there produced upwards of £2,000,000 sterling.

The present high price of tin (above £30 per ton) will cause the returns to be enormous in amount. It is not expected that more than half the capital will be required, as the directors are assured by disinterested parties that large dividends may be fairly anticipated within one year after the erection of the steam-engine.

The property is held by lease for the term of 21 years, at 1-20th dues only. A provisional agreement has been entered into for the purchase of this property for the very moderate sum of £3500 in cash and 1000 fully paid-up shares.

Special attention is called to the highly favourable reports from the highest and most reliable authorities in the county, which fully confirm the statements here made of the unparalleled wealth awaiting the operations of the miners.

The directors will impartially allot according to priority of application; but as it is expected that the demand will be very great for these shares, an immediate application should be made. A considerable number of shares have been already privately applied for.

Prospectuses, with plans, reports, and forms of application, may be obtained at the offices, 11, Waterloo-place, Fall-mall, S.W., and at the brokers.

THE NEW CONCORD SILVER, LEAD, AND COPPER MINING COMPANY (LIMITED).

Incorporated under the Companies Act, 1862.

Capital £30,000, in 10,000 shares of £3 each. Deposit on application 10s. per share, and payment on allotment £1.

BANKERS.—The City Bank, Threadneedle-street.

BROKER.—Alfred Bingham, Esq., 1, Cophall Chambers, E.C.

SECRETARY.—Mr. H. Brook.

OFFICES.—11, TOKENHOUSE YARD, LOTHBURY, E.C.

ABRIDGED PROSPECTUS.

This company proposes to purchase the freehold estate of Wonwood, near Tavistock, Devon, consisting of 100 acres, and including the valuable lead and copper mine known as Wheal Concord.

This mine was worked many years ago, and £24,000 worth of lead are obtained from shallow levels, when it was stopped in consequence of litigation between the company and the freeholder. It is now being worked on a small scale very successfully.

A provisional contract has been made for the purchase of the entire freehold, with all its mineral, and the plant of the mine, for £16,000, of which the vendors receive £7000 in paid-up shares.

Samples of the ore can be seen at the office, 11, Tokenhouse-yard, and prospectuses, and forms of application for shares, with the surveyors' reports, may be obtained also of the bankers and broker of the company.

Should no allotment of shares be made, all deposits will be returned.

WEST WHEAL FRIENDSHIP COPPER MINING COMPANY (LIMITED).

IN THE PARISHES OF BRENTOR AND TAVISTOCK, IN THE COUNTY OF DEVON.

Incorporated by the Companies Act, 1862, by which the liability of the shareholders is limited to the actual amount of their shares.

Capital £30,000, in 30,000 shares of £1 each. 5s. per share on application,

10s. per share on allotment.

DIRECTORS.

GEORGE BASHFORD, Esq. (Messrs. G. Bashford and Co.), East India Chambers, Leadenhall-street, E.C.

CHARLES FYFE, Esq., 5, New-square, Lincoln's Inn, W.C.

FRANCIS FORD, Esq., 9, Laurence Pountney-hill, E.C.

JOHN LEONARD, Esq., Southampton, and St. Lawrence, Isle of Wight.

GEORGE SHARER, Esq., 27, Leadenhall-street, E.C.

AUDITORS.

Frederick Maynard, Esq., Bread-street, E.C.

Samuel Lovelock, Esq., 7, Tokenhouse-yard, E.C.

SOLICITOR.

J. J. Poddell, Esq., 82, Cheapside, E.C.

BANKERS.

Metropolitan and Provincial Bank, 25, Cornhill, E.C.

CONSULTING ENGINEER.

Josiah H. Hitchins, Esq., Consulting Mining Engineer to the Devon Great Consols Mining Company.

SECRETARY.—Mr. William S. Martin.

TEMPORARY OFFICES.—4, GREAT WINCHESTER STREET.

PROSPECTUS.

This valuable mine is situated in the parishes of Brentor and Tavistock, in the county of Devon, and almost adjoining the celebrated Wheal Friendship Mine, which has paid upwards of £200,000 in dividends.

It will be seen from the reports that the lodges in this mine are not only of unusual width, but in their geological construction exactly similar to those of the great mine just mentioned.

Notwithstanding the encouraging prospects which the extent of ground laid open had offered, the working of the mine was abandoned five or six years ago, consequent upon the funds that sprung into existence among the then adventurers, after an expenditure of upwards of £10,000.

In commencing operations upon new ground, it frequently occurs that a large sum is laid out, and discovered after a time to have been a fruitless expenditure; but, in the present instance, the outlay has proceeded to the extent of showing the valuable nature of the mine, the certainty of success, and of the shareholders soon being in possession of an excellent dividend-paying property.

The principal feature of the seat, as at present explored, consist of three lodges, referred to in the reports as the main north lodge, the middle lodge, and the great south gossan lodge; and from their quick underlie, the junction of these two latter with the main lodge may be expected at not much greater depth than the present engine-shaft, in the sinking of which a large sum of money was expended by the former adventurers.

It is proposed to erect immediately a steam-engine of 40 or 50-in. cylinder, to continue sinking the engine-shaft to the junction of the lodges, and by cross-cuts at the present depth of the engine-shaft to intersect the three lodges, which operations have been always considered indispensable for the development of the resources of the mine.

The properties and general characteristics of the lodges at the 33 and 43 improved to such an extent, that when the junction of the three lodges just mentioned is reached, which can be done in about six months from the time of the erection of the engine, very productive returns may be confidently expected, although it is fully believed that at the 43 (the present depth of the engine-shaft) the lodges will prove highly remunerative.

The plant comprises on surface a 40-ft. water-wheel, available for stamping and dressing the ore, pumps, water-courses, carpenter's shop, smithy, office, &amp;c.

The undertaking is divided into 30,000 shares of £1 each, representing a capital of £30,000, and arrangements having been made for the purchase of the lease, plant, &amp;c., on the property, for £6000, in the shares of the company, and £1000 in cash (thus showing incontestably the high opinion entertained by the vendors of the mine), a clear working capital of £24,000 is thus left for all future operations, a sum deemed ample, if not in excess, for all wants and work that can be required to fully develop the valuable contents of the ground.

The mine is held on a lease for 21 years, at a royalty of 1-15th.

A careful perusal of Mr. Josiah Hitchins's report is earnestly invited, as also that of Capt. James Richards, in which are found embodied all the advantages possessed by this really most valuable property.

Prospectuses containing reports and maps, and forms of application for shares can be obtained from the solicitor or secretary at the company's office.

FORM OF APPLICATION FOR SHARES.

(To be forwarded, with 5s. per share, to the company's bankers or to the secretary.)

To the Directors of the West Wheal Friendship Copper Mining Company, Limited.

Gentlemen.—Having paid into the hands of you the sum of £5, being 5s. per share on 100 shares in the above company, I request you will allot me that number of shares, and I hereby agree to become a member of the company, and to accept the same shares, or any less number which may be allotted to me; to pay the remaining 5s. per share on the shares allotted, and to sign the Articles of Association when required.

Name.

Profession or business.

Address.

Dated the day of 1863.

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200,000 "	.....	260
250,000 "	.....	300

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By J. B. AUSTIN, of Adelaide, S.A.

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should lend a willing ear to the sophistries and misrepresentations addressed to them, and return a verdict which exonerates the owners and managers from blame, renders the law ineffective, and publishes to the world the startling fact that, notwithstanding the humane intentions of the Legislature, the Inspection Act is a failure, so far, at least, as its protective penalties are concerned.

The average annual loss of life in coal mines has not been diminished by the Inspection Acts; and so long as 50 or 100 men can be destroyed with impunity, it is in vain, as sorrowful experience tells us, to expect that the expenditure of money will be made which is requisite in many cases to ensure the safety of the workmen. Our columns during the last few years have borne ample evidence of the truth of what we have stated, and our readers will have no difficulty in calling to mind numerous instances confirmatory of the opinions we have expressed. Indeed, the alleged facts are too notorious to be called in question.

The loss of about a thousand human lives every year in our coal mines is disgraceful to the country, and loudly demands the serious consideration of the public; for it is to public opinion and the press that the miners must look for a remedy to this appalling evil. The Government and Parliament will not trouble themselves with such a subject until compelled by the urgent remonstrances of the people. Both the Secretary and the Under-Secretary of State for the Home Department are representatives of towns in coal mining districts, and the latter gentleman is, we believe, an extensive proprietor or lessor of collieries. We cannot, therefore, expect them to be so quixotic as voluntarily to run the risk of offending their most influential constituents, or imperilling their private interests by any efforts at renewed legislation, so long as the public voice is silent.

It cannot be too often or too loudly repeated that 1000 men are annually killed in our mines, and that the majority of the fatal "accidents" arise from preventable causes. Another important fact is that the present law has not diminished this awful destruction of human life. The Inspection Acts have been in operation 12 years, and yet the violent deaths in mines are as fearfully numerous now as they were before the first Act was passed. Surely this is proof sufficient of the utter inadequacy of the means employed to accomplish the object contemplated.

It is for the public to say whether or no such a state of things is to continue. No efforts ought to be left untried to remove this monstrous human sacrifice, which we repeat is a national disgrace, and is as bad in policy as it is repulsive to christianised civilisation. We earnestly invite the co-operation of all "good men and true," and hope that during the present parliamentary recess the subject will receive such attention and discussion as to force the consideration of it upon Her Majesties Ministers and the Legislature, so that some really efficient law may be enacted in the next Session of Parliament.

#### COAL-CUTTING BY MACHINERY.

An improved coal-cutting machine, invented by Messrs. Robert Ridley and Jones, has just been completed at Mr. Middleton's factory, in Loman street, S.; and on Saturday last we took the opportunity of inspecting it at work, the cutting upon this occasion being made into a solid block of freestone. The size of the machine is about equal to that of a full-sized truck, being about 3 ft. long, 1½ ft. wide, and 2 ft. high; it has flanged wheels, to run on the ordinary pit tramway, and weighs about ½ ton. Motion is given to it by a 6-inch cylinder high-pressure engine, the pick being connected with the end of the piston-rod, and by varying the mode of connecting, the blow may be given either right-handed or left-handed. There is an arrangement for regulating the depth and force of the blow, precisely similar to that used in the steam-hammer; and as the attendant has his hand constantly upon this regulator whilst the machine is at work, the precision obtained is fully equal to anything that could be obtained by hand labour. Indeed, the collier directing the machine must use precisely the same amount of judgment as if he were using an ordinary pick; the principal difference being that he is enabled to strike five blows with the machine for one blow with the hand.

With respect to the efficiency of machines upon which this is recorded to be an improvement, we cannot do better than state the results recorded by Messrs. Daglish and Wood, in their paper read before the North of England Institute of Engineers, as obtained in actual practice with Messrs. Donisthorpe, Firth, and Ridley's machine, at the West Ardsley Company's Balaclova Colliery, near Leeds. Working long wall, a kirving 35 yards long and 37 in. deep, was made in 2 hours 45 minutes, including all stoppages; and in a subsequent experiment, a kirving 43½ yards long and 37½ in. deep was made in 2 hours 37 minutes, so that at the mean practicable working speed it would appear that a yard can be cut in about 4 minutes. A kirving of the depth mentioned would be made at three cuts; the first going in about 16 inches, and the two subsequent cuts about 10 or 11 inches each. In these experiments the speed of the blows averaged about 40 per minute, but the machine just completed gave 15 in 10 seconds, so that it is probable 60 per minute could readily be given in the pit. As compressed air is used instead of steam, the difficulties which have prevented the success of several of the machines which have been introduced do not exist, whilst the price of the machine being considerably under 100*l.*, and its liability to get out of order is very small, it cannot fail to be very generally adopted as soon as the amount of economy which it effects becomes generally known.

**UTILISATION OF BLAST-FURNACE SLAGS.**—At a recent meeting of the Manchester Geological Society an interesting paper was read by Mr. J. Plant, "On the Effect produced on Rowley Rag by Heat, and the Practical Application of its products to useful purposes." The Rowley Rag is a melaphyre, and intermediate between ordinary greenstone and black basalt, of dirty greenish brown, hard and tough in a fresh state, and of the specific gravity of 2.85. It is composed of silica, 55; alumina, 25; oxides of iron and manganese, 12; lime, 8; soda, 6; and inappreciable amounts of potash and magnesia. Mr. Plant carefully traces the several inventions which have from time to time been introduced for converting the Rowley Rag into a kind of artificial obsidian, concluding with a reference to Messrs. Chance and Adcock's patent for casting articles from the slags of blast-furnaces. As almost all that relates to the treatment of Rowley Rag would be capable of application, with trifling modifications, to the treatment of blast-furnace slags, too much importance cannot be attached to Mr. Plant's paper, even if it does no more than revive the consideration of the subject. The paper was followed by an animated discussion.

**THE VALUE OF MEXICAN MINING SHARES**—(From a Correspondent).—A most unfair attempt having been made to give one class of Mexican mining shares a higher value in the British market, to the prejudice of the other class, it may be well to point out the true position of the two classes of shares—the *barras aviadas* and the *barras aviadoras*. The Mexican *ordenanzas de mineria*, or mining code, considers every mine denominated (that is, claimed for working) to consist of 24 *barras*, or shares, and the whole of these *barras* belong to the explorer who denounces the mine; these are *barras aviadas*. If the owner (he who has denominated the mine) has no capital, he at once proceeds to dispose of a certain number to those who are willing to provide the cash for developing the mine; the *barras* so disposed of become *barras aviadoras*, or capitalists' shares, and the holders of them are entitled to receive back their advances, without interest, out of the first profits from the mine. The *aviadores*, or capitalists, must continue to find money until the mine becomes profitable, for if their capital be absorbed, or they decide to cease working, they must restore the mine, in good working order, to the owners of the *barras aviadas*. The two classes of shares are in somewhat the same position with respect to each other as shares liable to call and paid-up shares in an English limited company. If you hold a paid-up share (*una barra aviada*) you have the chance of gain without the possibility of loss; if, on the other hand, you hold a share liable to calls (*una barra aviadora*), you must pay the calls as made, or forfeit what has already been paid. The holder of a *barras aviadas*, however, receives back the property in case of failure or abandonment, which the paid-up shareholder does not. In a progressive mine not paying cost, the *barras aviadas* is, consequently, the most valuable; during the time that the mine is returning the capital expended in developing it the *barras aviadora* has the best of it; and as soon as the capital is repaid both classes of shares are equal. This is theoretically; practically the value of all the shares in a mine may be considered equal at all times, because the relative proportion of the *aviadas* and *aviadoras* is fixed by the contracting parties, and usually in proportion to the chances of success. The owner endeavours to obtain the capital for as few *barras* as possible; the capitalist endeavours to obtain the largest possible number of *barras* for his money. Suppose a mine is estimated to require 18,000*l.* to put it in a paying position, and the owners and capitalists agree that there shall be 18 *barras aviadoras* and 6 *barras aviadas*, the capitalists may, if the mine cuts rich soon, get their three-quarters of the mine for 6000*l.* or less, or they may

have to pay thrice 18,000*l.* for that same three-quarters of the mine; but the holders of the *barras aviadas* will receive their one-fourth of the aggregate profits after the money expended has been returned, whether the outlay was 6000*l.* or 60,000*l.* The only possible time at which the *barras aviadora* can be worth more than the *barras aviada* is during the period that the mine is in a transition state from a losing to a paying concern; but it will be obvious that there are more cases than one in which the *barras aviada* would be undoubtedly the more valuable class of share.

#### REPORT FROM NORTHUMBERLAND AND DURHAM.

AUG. 13.—There has been a good demand for ships on the Tyne during the last week, and freights continue to advance. Baltic and Mediterranean rates are improving. At Hartlepool, the rates of freight are also firm. The chemical trade of the Tyne continues good, and prices are decidedly firmer. Prices are, for assorted casks 4*l.* 7*s.* 6*d.* to 4*l.* 10*s.* per ton; export casks, 4*l.* 5*s.* per ton; bicarbonate soda, 11*s.* to 12*s.* per ton; bleaching powder, 9*s.* to 9*s.* 10*d.* per ton. The projected works of Messrs. Tenant, of Glasgow, who intend to erect and work extensive chemical works on the Tyne at Hebburn, are expected to be commenced very shortly. The various plants are in preparation by a well-known architect of Newcastle. The Coal Trade still suffers depression in various branches. At many of the large steam and house coal collieries the demand keeps them going little more than half time. There are some exceptions to this, but it is certain that it applies to too many of them. The gas and coking coal collieries are doing better, many of them being fully employed.

The local railways and ironworks keep the coke collieries pretty well employed, as far as the iron trade continues to sustain its position, and even to extend, while none of the local railways have as yet substituted coal for coke in the working of locomotives. The North-Eastern Company, on its main route and numerous branches, the North British, and other local railways, all continue to consume coke exclusively. This can hardly excite surprise, as coke is abundant and cheap throughout the district, while coal suitable for locomotive consumption is comparatively very scarce. The exact reverse of this state of things exists in the Southern and Midland districts, which accounts for the use of coal on many of the principal lines of railway there. The Elswick Colliery, near Newcastle, continues to extend and prosper, the workings having now reached a considerable extent. A new shaft is to be sunk, so as to communicate with them. The works are at present carried on by means of one large shaft, which is braced. The sinking of the new shaft has been let to a well-known contractor in this kind of work, Mr. William Fryer, of Gateshead, and it is to be commenced with immediately. The depth to be sunk is about 100 fms. The iron shipbuilding trade continues to progress most satisfactorily on the Tyne and the other principal north-eastern ports; and one particular branch of this trade is the building of screw-ships for the carrying of coal. Great attention is paid to this branch of the trade, and many ships of this class are building. Indeed, many look to this as almost the only means open for permanently improving the northern coal trade, as it will afford the means of cheap and rapid transit for this coal to the continental ports, where the northern coalowner can, without doubt, compete with any coal which can be produced. The rapid increase of iron ships propelled by steam must, however, alone improve the demand for steam coal, of which a plentiful supply will be forthcoming at the northern collieries for many years to come.

The British Association for the Advancement of Science commence their proceedings on Wednesday, the 26th inst., when the first general meeting will be held in the Town Hall, and the Rev. Robert Wills, M.A., F.R.S., will resign the chair, after which Sir W. G. Armstrong will assume the presidency and deliver an address. The local, executive, and general committees in Newcastle are making ample preparations for the meeting of the association, and the distinguished members from a distance who will attend the meeting will be entertained with unbounded hospitality by the northern people. The following gentlemen have been chosen presidents of sections:—Mathematical and Physical Science: Mr. W. J. Macquorn Rankine, C.E., LL.D., F.R.S., professor of engineering in the University of Glasgow; Chemical Science, Mr. Alexander W. Williamson, Ph. D., F.R.S., professor of chemistry in University College, London; Geology, Mr. Warington W. Smyth, M.A., F.R.S., F.G.S., professor of mining and mineralogy at the Royal School of Mines, London; zoology and botany, including physiology, Mr. J. Hutton Balfour, M.D., professor of botany in the University of Edinburgh; geography and ethnology, Sir Roderick I. Murchison, K.C.B., economic science and statistics, Mr. Wm. Tite, M.P., F.R.S.; mechanical science, Prof. Willis, of Cambridge. Among the more interesting features of the meeting, it is anticipated, will be the reading of papers descriptive of the great branches of industry in the district, such as coal mining, the glass and iron trades, iron shipbuilding, &c.; and the excursions, which will be to the iron district of Cleveland, where the party will be entertained with magnificient hospitality by the ironmasters of Middlesborough; to the lead mines of Mr. W. B. Beaumont, M.P., at Allansheads; to the Northumbrian lakes, and the Roman wall, to South Shields, Sunderland, and to Senton Delaval, and other large collieries in the district. There will be an extensive exhibition of works of art and science held in the Central Exchange News-room, the Mayor of Newcastle will give a grand concert, and there will be several balls and other gaieties during the week of the association's meeting. Sir William Armstrong will also make several great gun experiments upon Whitby Sands on one of the days of the meeting. A meeting of the general local committee was held at the Literary and Philosophical Association on Saturday, the Mayor in the chair. It was attended by Mr. Ingham, M.P., Mr. S. Beaumont, M.P., and a number of influential manufacturers. Mr. Griffith, the general secretary of the association, was present, and he expressed himself highly pleased with the arrangements made by the executive committee for the meetings.

At the North of England Institute of Mining Engineers annual meeting, held in their rooms, Neville Hall, Newcastle,—Mr. Nicholas Wood (President) in the chair—the financial report showed an expenditure in excess of income, owing to the expense of printing a supplementary volume of the Transaction of the Birmingham Meeting, and reprinting Volume II. Several new members were elected. The officers for the ensuing year were also elected. Mr. Wood was re-elected president, and Mr. Thomas Doubleday secretary. Mr. Howse, of South Shields, was appointed to take charge of the library and fossils of the institute, to edit the papers, &c., at a salary of 35*l.* per annum. Some alterations were made in the rules, by one of which persons who are studying for the profession of a mining engineer may be admitted to the privileges of membership, under the term "graduates," on the payment of an annual subscription of 1*l.* 1*s.*

#### REPORT FROM MONMOUTH AND SOUTH WALES.

AUG. 13.—The misfortune of one generally benefits another, and the analogy is true, to a great extent, as to the present state of the Iron Trade of this district. The unfortunate dispute between the South Staffordshire ironmasters and their puddlers has, without doubt, been the source of great loss to both employers and employees in that once prosperous locality, and the mischief and injury of a few months will often take years to repair. I fear that South Staffordshire will find such to be the case in the instance under notice, and it is not surprising to see some of the makers evincing a disposition to accede to the terms of the men rather than let orders go to other districts. On the other hand, it is quite clear that the current quotations for iron will not admit of an advance to the puddlers, as they were paid before the turn-out 6*d.* per ton more than is usual in proportion to the price of iron. Certainly other districts are reaping a considerable benefit through the stoppage in South Staffordshire, and South Wales has had a full share of the orders which would otherwise have found their way to that county. This fact is proved by the improvement in quotations for the last two or three weeks, and the firmness with which the current prices are held. The orders in hand enable the ironmasters to keep the works regularly going, and even if the present circumstances in Staffordshire did not exist, the iron trade of this district would be in a fairly satisfactory state. Within the last three or four days prices are not quite so firm, and buyers are holding back, but masters decline to take orders at lower rates, and unless some unforeseen event should occur, it is more than probable that buyers will have to submit to the ruling quotations.

The Coal Trade shows increased activity, and large shipments are taking place. The returns of the exports for the month of July from Newport, Cardiff, Swansea, Llanelli, and Neath, are decidedly satisfactory, and as compared with the corresponding month there is a very large increase. This fact indicates a return of better times for the coal trade, and the coal-masters express confidence in the future. Prices are firmer, and there is a prospect of an advance.

On Saturday a case was heard before Mr. Fowler, the stipendiary magistrate for the Merthyr district, and the decision shows that the local magistrates are at last determined to carry out the spirit of the law as regards colliery offences. Henry Hendry was summoned by Mr. John Thomas, manager of the Middle Duffryn Pit, for neglect of duty and infringement of the colliery rules, by not keeping a proper supply of water in No. 6 boiler, in consequence of which the boiler burst. Defendant was the stoker, and it was his duty to see that a proper supply of water was always kept in the boilers. The offence was clearly proved, and it appeared that it was sheer neglect on the part of the defendant. If he had tried the gauge cocks every half-hour, as he should have done, he must have found out the want of water, and if cold water had been turned into the boiler just before its state was discovered, it was impossible to calculate what loss of life might have occurred. There were about 140 hands at work there. Mr. Fowler remarked that he could

not pass over such a serious offence lightly, and defendant was committed for twenty-one days with hard labour.

The opening of the Bristol and South Wales Union Railway is being looked forward to with great interest, as the new route will materially diminish the distance between Bristol, the West of England, and South Wales. The 19th inst. has been fixed for the formal opening, and it is expected that passenger and light goods traffic will be commenced in two or three days after. The Great Western Company are to work the line, and will very probably become the future lessors. The Milford and Johnston line was opened on Friday, and the unseawalled harbour of Milford Haven has now a direct railway communication with all parts of the kingdom. The advantages which the port of Milford possesses as regards safety, depth of water at all times, protection from gales, and many other matters which might be named, are well known and acknowledged, that it is unnecessary to dilate further upon them. To secure that commercial importance which Milford is entitled to, two things are indispensably necessary—the extension of the narrow-gauge to the port, and the establishment of large and extensive docks. The latter point is in a fair way of being realised, as a bill was obtained during last session with the view of carrying this project into effect, and it only remains for the Great Western to lay down a narrow-gauge rail on the South Wales line, and then there is no doubt but that Milford will see such a period of prosperity as has never been known before in the history of the port. The recent amalgamation of the West Midland and Great Western gives some hope that the narrow-gauge will be more generally adopted, and if this policy should be carried out the shareholders and the public will, without a doubt, be materially benefited.

The half-yearly meeting of the Lynly Valley Railway Company was held on Friday at the Great Western Hotel, Paddington,—Mr. Macgregor in the chair. Mr. G. J. Saunders, the secretary, read the report, which stated that the gross revenue for the half-year amounted to 9374*l.*, and the working expenses to 3130*l.* The net income, after deducting working expenses and interest on the debentures and on land purchases unpaid, amounted to 4232*l.* The amount required for payment of the dividend at the rate of 5 per cent. upon the first and second preference shares was 3576*l.*, leaving a balance of 667*l.* available for distribution among the holders of ordinary stock, and in order to enable the proprietors of that stock to receive a dividend of 4 per cent. it would be necessary to take 72*l.* from the reserve fund, which would then be reduced to 5467*l.* The directors had made arrangements by which all litigation with the principal traders on the line had been terminated. The report was adopted, and the dividends recommended were agreed.

The Taff Vale Railway Company propose paying a dividend at the rate of 9 per cent. per annum for the past half-year. This is the largest dividend paid by any other railway company during the half-year.

The arrivals at Swansea include—The Clarence, from Antwerp, with 160 tons of fire-clay, for Vivian and Sons; Alma, from Borgo, with 15 tons of plumbago, for the captain; Ralph, from Cherbourg, with 130 tons of iron ore, for the Dowlais Iron Company.

#### REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

AUG. 13.—The Puddlers' Strike, which has now lasted for nearly five months, continues much as it was. Notices for the advance have been given at three or four additional works, and the men are evidently straining every resource to secure their object before the fine weather and the harvest are past. At the present moment there is any amount of work in the harvest fields, so that the pinch is as little felt as is conceivable under the circumstances. The masters insist that they are giving 6*d.* per ton above the scale which has ruled for many years, as to which there can be no doubt, and the real reason why the puddlers have struck is that the price of iron, and with it the rate of payment for puddling, have continued low for so long a period, which is the result of the competition of new districts, to which (by the way (and this is an important element in the question) a great number of the men have been attracted. There can be no question that the ironmasters of Staffordshire have greater difficulty at this moment in paying the present rate of wages—7*s.* 6*d.* per ton—than they have had in paying 10*s.* at other periods.

The demand for finished iron is good for those who can produce it, and for sheets, hoops, and plates many of the masters have orders on hand from five weeks to two months, a state of things which has not existed for a long time previously. The termination of the strike would, however, soon change this state of things, as the make would be at once increased by fully a third.

Pig-Iron keeps dull of sale. For best qualities of hot-blast the price is 3*l.* 5*s.* to 3*l.* 7*s.* 6*d.*, descending from that amount to 2*l.* 10*s.*, and even a shade lower. The Hardware Trades of Birmingham and South Staffordshire are, as a rule, moderately active.

The permanent distress amongst the silk weavers of Coventry has induced Lord Leigh, the respected Lord-Lieutenant of Warwickshire, and a number of influential gentlemen, to start a company for introducing the woollen manufacture into that town. It is an effort which promises to and deserves to succeed.

Mr. Molyneux, whose first paper "On Cannock Chase and its Collieries," caused subsequent ones to be desired, announces a work on "The Coal Fields of North Staffordshire." The ground is almost untraversed, and the great attention Mr. Molyneux has bestowed on it, especially in his researches, which are to be embodied in a paper he has been engaged to read at the forthcoming meeting of the British Association, give promise of a very complete and very interesting work.

A meeting in connection with the North Staffordshire and North Wales Amalgamated Miners' Association was held yesterday week, in the open air, at Hanley, in the Staffordshire Potteries. It was convened as a "mass meeting," and previous to the proceedings a number of the promoters paraded the streets, headed by a band. Partly owing to the rain, however, only about 200 persons were present. Mr. T. Hickman, of Kidsgrove, was called upon to preside, who, after making a few remarks, called upon the secretary, Mr. Jones, of Kidsgrove, secretary to the North Staffordshire Miners' Association, to address the meeting. Mr. Jones referred to the successful steps taken by the association to raise the wages of the working miners of the district during the last two years. He also stated that in the course of that time the association had paid to sick members the sum of 1290*l.* 6*s.* 6*d.*, at the rate of 8*s.* per week to each recipient; and for death money 182*l.*, at the rate of 10*s.* for a member, and 3*l.* for a member's wife. He remarked that a great number of the cases thus relieved would, under other circumstances, have had to apply for parochial relief, and urged that such results having been obtained from their own united efforts, they ought to take courage, and to cultivate more persistently the principle of self-help. Mr. J. Towers, of London, the editor of the "Miners' and Workman's Advocate," delivered an address on the subject of unity amongst working miners. In his remarks this speaker referred to the fact that in this country there are about 300,000 miners, with about 1,500,000 people depending upon them; that of this number there were 1000 killed annually, and 10,000 injured, more or less; that of this number there were 1000 cases of a miner's life; and that a miner's wife became a widow 15 years sooner than the wife of an agricultural labourer; and that 68 per cent. of the miners in excess of the general population died annually, as a consequence of breathing an impure atmosphere. He also referred to the liability to catastrophes like those which had occurred at Hanley and other places within the last few years. From these facts he urged that they, as a body of working men, should endeavour to raise their social and moral condition; that they should combine legally and peaceably to carry out their purposes; and that they should endeavour to make their children better men than themselves by education. In the course of his speech he said the strike system, as a rule, had done more harm than good, although in certain cases, perhaps, it might have been beneficial. He considered that the present system of surveying, under the Mine Inspection Act, was defective; he thought that there ought to be appointed as Inspectors a sufficient number of practical, experienced, men who thoroughly understood the working duties of miners, instead of a few gentlemen who were only theoretically acquainted with them.—Mr. S. Smith, who attended as a deputation from the North Wales Association, stated that during the last six

by a limited company, with a capital of 100,000*l.*, in 20*l.* shares, of which only one-half is to be issued at present. The collieries are estimated to contain 29,000 tons of coal to the acre, the seams varying from 4 feet to 13 feet in thickness. They are estimated to be capable of an output of 500 tons per day, and it is estimated that 15 per cent. profit will be realized. The direction is composed of local gentlemen, with the exception of Mr. Hanky, of Old Broad-street.

Two colliery accidents have occurred in the neighbourhood of Chesterfield during the past week. At the Hunger Hill Pit, belonging to the Wingerworth Company, John Hester received on Saturday morning a compound fracture of the skull, of which he afterwards died. The men were descending in the cage, when the chain tipped, and precipitated them to the bottom. The inquest is adjourned until Monday. Two other men were injured, one severely and one slightly. At the Chesterfield and Midland Shilstone Company's Colliery, on the same day, Edward Cook was killed by a fall of roof.—Verdict, "Accidental Death."

There is nothing new to notice in the lead mining district of Derbyshire. The failure of the North Derbyshire Mine has put a damper on new undertakings.

#### MINING IN THE ARGENTINE REPUBLIC.

Although the title—"A Mining Journey across the Great Andes"—might prove less attractive to the general reader than many others that could have been chosen, we have no hesitation in stating that Major Rickard's book is written in a very attractive style; and that it is well calculated to impart to the reader a fair knowledge of the character and peculiarities of the country, and at the same time to direct attention to the mineral riches of the Tontal district, and to induce the British capitalist to embark in the development of its mines. The author of the work in question was well known to many readers of the *Mining Journal* during his Cornish career; and some six years since he received an appointment to go out to Chili; and it was upon the termination of this engagement that the narrative contained in the "Mining Journey across the Great Andes" commenced. Bring about to return to Europe, he received an offer from the Government of the Argentine Republic to enter its service as Inspector-General of Mines. To reach the seat of his new duties, a journey across the Andes became necessary; and it is this journey that forms the subject of the book.

The first district to which Mr. Rickard directed his attention was that of Tontal, which extends over 90 miles. He observes that the geological formation may be considered one of the best for silver—cinnabar, and in some parts killas, gauwacke, &c., together (further south) with some of the best silver-bearing igneous rocks. The ore contains a fair quantity of metals calidos, or silver ore which is capable of amalgamation without calcination. One hundred samples given an average ley of 168 ozs. to the ton. The principal part of the silver exists as chloride, and as oxide and carbonate of iron are present the extraction of the silver will be much facilitated. There was out on the surface in September, 1862, about 900 tons of ore of superior ley, and he considers that he does not exaggerate when he states that in May, 1863, there were at least 1500 to 2000 tons of ore extracted in Tontal, the average ley of which will be over 200 ozs. to the ton. Firewood and water are abundant, but capital is wanting; and any speculator offering at the mine half the real value of the ore would obtain them, in consequence of the miners not having funds to pay for transport. Recent advice from the district inform him of several most important discoveries of new veins and lodes, and the number of mines now in operation exceeds 100. Some of the lodes are as wide as 3*l.* yards, and on the whole, might average 1*l* 1*q* yard, and that a fair quantity of ore could be extracted daily. Many of the wider veins are comparatively poor (about 60 ozs. to the ton), but worked on a large scale would pay remarkably well. He considers it to be a great mistake to take out Cornish miners to South America. He believes that by employing native miners, and working economically, labour might be less expensive than it is.

With a view to the erection of reducing works, and purchasing the ore, a joint-stock company, of which the author is the manager, has been formed, with a capital of \$10,000, but he considers there is ample room for three such companies, the district being 90 miles long by 45 miles wide. After describing the unsystematic mode of working pursued at La Carmen, he gives the results of 24 assays of average samples from the different mines at Tontal and La Huerta, obtained by him in the Government laboratory at San Juan—the average is 356 ozs. of silver to the ton. In working the mines of San Juan he proposes to dispense with perpendicular shafting altogether (except for purposes of ventilation), and to work on the lode itself by means of chafones and frontones. He considers that by extracting 15 tons of ore per day, containing on the average 50 ozs. of silver to the ton, a profit might be realized at 13*l*. 10*s*. per day, or 40,400*l.* 5*s*. per year, working 300 days. He considers that the Tontal district has good chances of becoming at some future and no distant period of considerable importance in the mining world.

The route to La Huerta is next described, and by this means we are brought to the mining district itself. Upon reaching the first mine, situated in a deep quarry, he found that it had been worked as a gold mine, but was really a quartz vein, impregnated with red oxide and blue silicate of copper, containing some gold. The veins were well formed, and promised fairly, but he sets down all the mines in the district as of little importance. The only one that deserves attention is La Santo Domingo: this mine is 150 yards deep, and wretchedly worked; the roof and sides were almost tumbling in, and he only refrained from pronouncing it denounceable from the fact that up to that time they were comparatively ignorant of the proper mode of working. The vein is not very wide, not constant in its width, varying from 1*l* to 1*q* yard, but yielding massive galena, of a lye perhaps superior to any on record; some samples yield as much as 7200 ozs. to the ton, and the average ley of all the ore extracted is 800 ozs.; specimens of native silver are also found. From the antiquity of the process in use, it takes two months, and 28 days to do the same work that would be done in England in 24 hours; yet so wedded were the proprietors to the old system, that they refused the inspector's offer of drawings of a model lead furnace, and continue to be guided by an old Frenchman, brought from Cordova at a high salary.

In the neighbourhood of Marayes, Major Rickard found thin beds of bituminous coal, but questions its commercial value. He is of opinion much may be done there, as the greater part of the mines are unexplored, and any number of veins may be seen cropping out which might merit the attention of adventurers. In the remaining chapters, the return of the author to San Juan, and his recall to Buenos Ayres, in order to be sent to this country to purchase the necessary machinery, and select competent men to manage the mines, and the advantages of the Argentine Republic as a field for emigration is pointed out. The entire work is very readable, and contains much valuable information.

\* "A Mining Journey across the Great Andes; with Explorations in the Silver Mining Districts of the Provinces of San Juan and Mendoza," &c. By F. J. RICKARD. London: Smith, Elder, and Co., Cornhill.

"GOOD THINGS FOR RAILWAY TRAVELLERS" is well calculated to afford an almost interminable source of amusement, and a ready means of rendering tedious journeys short. Railway travelling, the doctors tell us, is seldom injurious to health, but that the sight may sometimes be affected by fixing, or rather, attempting to fix, the eyes upon the rapidly passing objects; and as the best remedy against the evil of looking out of the window is to have something within it more attractive, "Good Things" stands a fair chance of becoming a well-known specific amongst railway travellers. "Good Things" contains 1000 anecdotes of all conceivable kinds, and all excellent. It matters not whether our particular choice is in the direction of philology, classics, or history, we shall be equally delighted with the sketches we meet with. We may compliment a friend with "Il a l'esprit saisi—i.e., triez et trolez (très étroit); or we may study Latin from the writings of Swift, of which we give a specimen:

Molls about;  
No lasso finds;  
Cantu disco ver  
Has an acuti;  
Omni de armistress;  
Meso ala ver?

But as Mining is the particular question in which our readers are interested, we may extract a brief historical account of the visit of the Queen and Prince Consort to a deep mine in Cornwall:—"I received a letter one evening from Mr. Edmonds, to say as how that Prince Albert was coming to our main the next morning. Thinks I, what can the Prince be coming to our mine for?" And I end't slape for the night for thinking what I shud say to the Prince, and what the Prince end say to me. "Well, in the morning, sure 'nu we saw the chay coming, and who should be in it but the Queen, as well as the Prince! There was a stone wall, between the men went to it, and it was down in a minute—in less than no time, and they come on, and the Queen got out of the chay, and ran about in the wet grass like a Billy!" Says she to Mr. Taylor—something, but I don't know what—but says he to me, "It is safe for the Queen to go into the main!" "Safe," says I, "Yes, safe as the Rock of Gibraltar!" So the drams were croft foot, and some straw a thrown into one, and some green baize after it, and the Queen skipt in like a lamb, and I do believe that I touched her! She didn't like it, tho' when 'twas wet; but when we cum on as we end to the west load, the Prince took the pick, and he thow'd to like—like a man! and he got a bit a ore. "This," said he, "is from the west load, so I puts 'em in to my left pocket, and this is from the east load, to Mr. Taylor, says she, 'What's that there blue that I do see?' 'Bliss ye, ma'm,' says he, "that's the light o' day.' One hundred and twenty miners were ready to cheer 'em as they drove off (all red, like Injins, from the red ore of the main), and we did cheer to be sure, as never was before."

\* "Good Things for Railway Readers." One Thousand Anecdotes, original and selected. By the editor of the "Illustrated Railway Anecdote Book." London: Lockwood and Co., Stationers Hall-court.

DEATH OF MR. BOTFIELD, M.P.—We regret to announce the demise of this gentleman, which took place at his residence, in Grosvenor-square, after a lengthened illness. The deceased was the only son of the late Mr. Beriah Botfield, for a number of years the proprietor of the celebrated Old Park and Stirlingshire Ironworks, and also proprietor of the Clay Hills Colliery, Herefordshire, of Norton Hall, Northamptonshire, by Charlotte, daughter of Dr. Withering, of Evesham Hall, and was born in 1807. He filled the office of high sheriff of Northamptonshire in 1831, and of Shropshire in 1855. He was first appointed a deputy-lieutenant of that county in 1841, and of Shropshire in 1855. He was first returned for Ludlow in May, 1840, and sat till the general election in 1847, when he was defeated, but was again elected in 1857. In 1858, Mr. Botfield married Isabella, second daughter of Sir Baldwin Leighton-Bart., of Loton Park, Shropshire.

LIVERPOOL GEOLOGICAL SOCIETY.—The second fixed meeting of this society took place on Friday, at Wigan, the proceedings consisting chiefly of an inspection of the coal workings and strata in the district named. In the first instance, the party were conducted to the Douglas Bank Mine, which is now in course of construction by Messrs. Cass and Morris, and under whose liberal invitation and courtesy the company were indebted for the very agreeable proceedings of the day. Having inspected the Douglas Bank Works, the company were conveyed to the Rosebridge Collieries, at Inc., which may be said to be one of Messrs. Cass and Morris's model mines. They were here shown the sections of the different workings, under the courteous superintendence of Mr. Bryham, the obliging manager, who explained to them the geology of this portion of the Lancashire coal field, and the general mechanical appliances for conducting the mine. Leaving that portion of the company's establishment, the visitors repaired to one of the workshops, where the preparations for the descent were made, and it was somewhat amusing to notice the faint-heartedness which at the outset displayed itself on the part of many of the "stronger sex," but whether it arose from the first resolution and determination manifested by the ladies, or from some other cause, the entire party descended the mine, and during a period of more than two hours were engaged in an interesting survey of its wonderful properties. Amongst the ladies who descended and braved all the terrors of a subterranean region of upwards of 600 yards from the surface of the earth, were the Misses Ascott, Johnson, Moore, Gibson, Bryham, Gregson, and Hardy, and Madam G. Gibson, Turner, and Jackson. After reaching the "upper earth," the visitors were entertained at a sumptuous banquet in one of the workrooms, of which about 100 ladies and gentlemen partook. Mr. Morris, jun., presided, and amongst the gentlemen present were, Mr. John Cross, the Mayor of Wigan; Professor Pinney, of Manchester; Mr. Higson, one of Her Majesty's Inspectors of Mines; and

several other scientific and influential gentlemen. "Success to the Liverpool Geological Society," was proposed by Mr. Higson, and responded to, in an appropriate speech, by Mr. Morton, the secretary. The party returned to Liverpool, highly pleased by the interesting proceedings of the day.—*Liverpool Albion.*

#### TRUTH'S ECHOES, OR SAYINGS AND DOINGS IN MINING.

The Mining Share Market continues very inactive, and the bond *ads* business of a limited character, with prices in many instances quite nominal. The decline which has taken place in the price of tin, and the absence of several dealers, who have taken advantage of the quietness of the market, generally have a tendency to lessen business; whilst, on the other hand, there are favourable contingencies, which afford every encouragement to hope for an early change and a general revival. The fortnightly settlement took place to-day, when the transactions for the account were arranged. Perhaps few accounts passed off with more ease, in consequence of the little amount of business done, resulting from the want of confidence produced by the severe losses arising from the recent devaluations.

WHEAL SETONS, after slight fluctuations, left off steadier.—BASSET and BULLER have been offered at lower rates.—CLIFFORD and STRAT PARK have been more in demand, and several transactions completed at improved prices.—EAST BASSET and COOK'S KITCHEN have been fairly dealt in at present quotations.—EAST CARN BREA and GREAT SOUTH TOLSON have changed hands at lower rates.—TINCROFT and WEST CHIVERTON are in request at buyer's prices.—EAST GREENVILLE and WHEAL GREENVILLE have been in better request.—UNITY and UNIVS have been done at nominal figures.—WEST FRANCIS have been fairly enquired for at fair market prices.—NORTH DOWNS, NORTH CROFT, and NORTH BULLER have been dealt in at lower rates.—NORTH TRESKEB and GREAT WHEAL HUST have been dealt in at market quotations.—A large number of WHEAL KITTY (St. Agnes) have changed hands this week, advantage being taken of the present high prices.—EAST HOSSEWAN, HOSSEWAN UNITED, and EAST PROVIDENCE are being sought for at lower rates.—NORTH ROSKEAR and ROSKEAR-NORTH continue heavy at present prices.—HARRIMENTS have been in request at minimum quotations.—BASSET and GRIFFS, WENDRON CONSOLS, and SITHNEY CARNKEL are less sought for at present quotations.—WHEAL GRIFFS are still in request at buyers' prices.—EAST WHEAL LOVELLS have been in fair demand, but prices have relaxed.—TREMAYNES continues in demand, and several bargains effected at lower figures.—GREAT WHEAL FORTUNE have been offered at lower figures.—MARGARET and WHEAL PROVIDENCE maintain their prices.—KITTY (Leant) and MARGERY are sought for at nominal rates.—BRYN GWIROS have been in good demand, consequent on a great improvement in the mine. Prices advanced, but since slightly receded.—LONG RAKES have also changed hands.—SOUTH CARADON are being sought for at fair market figures.—EAST CARADON have seen less fluctuation this week than for some time past, and remain steadier at slightly improved rates.—MARKE VALLEY and HERDSFOOT have fluctuated, but an improved demand has been taken place for the latter.—LUDCOTT and GONAMENA are a little firm.—GLASGOW CARADON find buyers at nominal prices.—MARY ANN, THRELAWY, and WEST CARADON are slightly weaker.—NEW WHEAL MARTHA, EAST HUSSELL, and CERDON have changed hands, without improvement in price.

EAST CARADON.—The report of this week is less favourable, there having been a falling off in two or three points, without any corresponding improvements, which generally take place. The 50 east is worth 12*l.* per fm.; the 60 east, 8*l.*; the 70 east, 25*l.*; the new lode in the 70 east 6*l.* per fm.; and the 70 west is saving work.

CORNWALL TIN.—At the special meeting held last week all the preferential shares were read and voluntarily subscribed for, thereby affording the company the means of liquidating the liabilities and completing the stamps and other erections, which were progressing so satisfactorily, as well as leaving about 4000*l.* in hand. There is now in operation 32 heads of stamps, and in about two months 32 additional heads will be in full work, whilst the quantity of tinstiff to supply the whole is rapidly accumulating. They have resumed driving the cross-cut in the 70, and are in daily expectation of cutting the lodes found so productive in the shaft a few fathoms above. They have intersected a branch or leader of good work for tin, which speaks favourably of the lodes now approaching. All other places are looking well, with increased returns of tin.

At CERDON very little change has taken place since last noticed; the lode in the shaft continues the same, no lode having been taken down, consequently the best is anticipated in the absence of positive evidence. The 84 west is reported to yield 6 tons per fathom. The other places of operation are without any change. The next sale will be on Thursday, when 106 tons (computed) will be sold.

WHEAL POLMAR: The prospects here are of a very improving character, and although some little delay, as well as disappointment, has taken place in attaining the whole of the objects to which the operations have been directed, the intersecting the quarry lode by the 15 cross-cut proceeds satisfactorily, and although the end is a little disordered at present they have a good course of ore in the back, varying from 10*l.* to 40*l.* per fathom, and the 20 is now within 10 fathoms of the ore ground passed through in the level above. On Tuesday last they intersected, by the 15 cross-cut, the first of three or four lodes, all within 50 or 60 fathoms of each other, and about 95 fathoms south of the Quarry lode; the lode is reported to be worth 20*l.* per fathom. This discovery is very important, as this run of lodes are parallel, and in similar stratification to the other productive lodes. There is another run of lodes to the north of the present workings, consequently Polmar may be looked upon as a very productive mine. At the four-monthly meeting, held on Wednesday, a credit balance of 492*l.* 10*s.* 5*d.* was carried in the next account.

NORTH JANE.—The prospects are considered of a very cheering character, inasmuch as they are making fair profit from the gossan, which contains a large percentage for silver, whilst the lodes continue to improve for tin. During the three months ending July 23 they have sold upwards of 125 tons of gossan, realising 468*l.* 7*s.* 9*d.* and about 41*l*. worth of tin. They are now extending a cross-cut from the 60 from surface, to intersect the lode which has been so productive of rich gossan in the 17, the cutting of which lode is looked to with deep interest. The tin is improving in depth, and they have a good lode in the sump-shaft and in the 30 and west, where the lode is 8*l.* wide, worth 20*l.* per fathom. With these objects in sight, the prospects are deemed highly encouraging.

NORTH CROFT: The operations which are being carried on in the development of Reeve's lode in depth appears to be working out with spirit, with every probability of profitable results. The engine-shaft is in course of sinking under the 170 in a very promising lode, just emerging from the sivan course. "Red's shaft is communicated with the 170, and that level driven 8 fms. east in a very promising and improving lode for tin and copper, and the other levels are also looking encouraging. The 170, west of Petherick's, has passed for 14 fathoms through a large and productive lode, averaging 16*l.* per fathom, and the 150 is looking more cheering. During the last four months the loss is given as 236*l.* 18*s.* 2*d.*, whilst the preceding account for five months showed a loss of 10*l.* 10*s.* 5*d.*

EAST PROVIDENCE: The chief operations are now carried on in the deeper levels, where they have a very productive lode for tin. They have gone through an extensive and continuous run of tin ground, as long and good as any in the district. The lode in the 60, west of Boorman's, is valued at 25*l.* per fm.; and the same level west is worth 30*l.* per fm. A winze sinking below is worth 15*l.*, and improving as they go down. They are sinking a new shaft in remarkably easy ground, which when completed, will facilitate the operations, and enable the produce to be taken away at a low rate of expenditure. The shaft is down 10 fathoms, and rapidly progressing, and can be sunk at less than one-fourth the expense attending that of Boorman's, which is in grand a hard description. The prospects are considered of more than ordinary promise.—WHEAL UNITY: The 40, both east and west, presents very encouraging appearances, without any decided change for the better. The 30 ends are also encouraging, so far as indications presented.

WEST WHEAL FRANCIS is represented to be progressing highly satisfactorily. The new engine-shaft has been completed to the 70, with all the necessary requisites fixed and on the mine. The steam-stamps, capable of driving 100 heads, is at work with 16 heads at present, and the same number about to be added, and the new pumping-engine can be got ready before the wet season sets in, and all the heavy expenses charged up. The 85, west of new engine-shaft, is in a promising lode, worth 20*l.* per fm., and opening out larger in the end. The 60 is also in a promising lode. There is a long run of tin ground opened between the 60 and 85 fm. levels, which can be taken away at a moderate cost. The mine, upon the whole, is looking very encouraging for a profitable and permanent one. At the quarterly meeting, held last week, a call of 50*l.* per share was made, to discharge the heavy costs incurred by the recent erections.

CALDWELLACK is reported to be looking encouraging, and holding out considerable promise of becoming a paying mine. The Grangiac and Fire and Sword lodes are about paying costs. The 92 east is approaching the cross-course, east of which some important discoveries are expected. Painter's shaft is down below the 80, but is suspended until the 92 has gone through the cross-course. The 80, east of cross-course, is worth 12*l.* per fathom; the 70 has just passed it, and is at present disordered. The 60 east is worth 10*l.* per fathom. There is every probability that all the levels are beyond the influence of the cross-course they will enter into good and profitable ground. At the meeting recently held a call of 12*l.* per share was made. The loss on the quarter arises from the expenses attending the erection of a new burning-house, and the development of the Grangiac and Fire and Sword lodes.

AT EAST WHEAL LOVELL the lode in the shaft continues to hold remarkably well, and a further improvement is reported to have taken place, being now worth 100*l.* per fathom. Several agents have recently inspected the mine, and given estimates of the value of the lode, which have varied from 70*l.* to 90*l.* per fathom, but now a further improvement is advised; the lode is full 8*l.* wide, and indicating every appearance of a permanent character, and considered one of the finest discoveries in Wendron for some time past. The shaft is sinking below the 26, in the back of which level the stopes are worth 32*l.* to 40*l.* per fathom.

BRYN GWIROS is reported to have further improved in the 90 east, where the lode has increased to 10 tons of lead ore to the fathom. The lode in the shaft has also improved, and like to become very productive; for 15 fathoms in sinking on the course of the lode it has been gradually improving, and now bids fair to make this a good paying and permanent mine.

JAMES LANE.

From Mr. EDWARD COOKE:—The market has been dull throughout the week, and, with the exception of dealings in a few mines, business in the share market may be termed at a standstill, although not more so than is usual at this period of the year, when the public generally betake themselves to the seaside for recreation for a few weeks. The present is, therefore, the time to buy rather than to sell, as a reaction will, no doubt, soon take place. A few weeks since I expressed an opinion that the over-sold accounts in EAST CARADON had caused a fictitious price for the shares. Some of the accounts having now been adjusted, the price has receded some 3*l.* to 4*l.* per share. According to the estimates of several inspecting agents, the reserves of ore have been variously estimated at from 26,000*l.* to 50,000*l.* Even taking the value at the latter amount, the mine at 180,000*l.* would appear to be selling ridiculously high. Up to the present time, it is to be regretted, the bottom levels have proved a great disappointment, and unless some great improvements take place, the reserves of ore will rapidly decrease at the rate they are being taken away. In a district like the Caradon, however, we ought not to despair on account of a mine falling off a little in its productive powers, which may only prove to be of a temporary character. Still, with all the probable chances of improvement, and (say) even 75,000*l.* worth of ore, for the sake of argument, no reasonable person can come to any other conclusion than that East Caradon at 170,000*l.* to 180,000*l.* is selling at a very high price. It must be borne in mind that to bring the ore to market will absorb some 10*l.* in 1*l.* of its value in working costs—hence the profits will be reduced to a considerable extent. In contrast with East Caradon, let us instance EAST WHEAL BASKET, which is selling at one-fourth

chase to be made of them. There is yet a very large amount of undeveloped ground, and also good reserves of ore, besides a large balance of cash to the credit of the company. The men are placed in a stop on the back of Jack's mine, on the same lode, which will yield from 1½ to 2 tons per fathom. We are pushing on the dressing as fast as possible, and during the past week we cleaned fifty 70 tons.

**ENGLISH AND CANADIAN.**—H. Williams, July 9: Kent's Shaft: The winze on Fanny Eliza, No. 2, was sunk 3 fms. 2 ft. 6 in., yielding 2½ tons of 45 per cent. ore when dressed. A fresh branch was met with, producing some excellent work, and worth about 1 ton of 45 per cent. ore per fm. In order to win this new branch to the best advantage, we have commenced stopping the ore that we have been lately opening out, and have set the same to six men, at \$50 per fm., and from present appearances are likely to obtain a moderate pile of ore during this month. William's winze was sunk 2 fms. 3 ft. 4 in.—about 40 tons of 3 per cent. ore in the rough. Re-set to six men, at \$80 per fm., an increase of \$8 per fm. Hayle's shaft was sunk 3 fms. 2 ft. 8 in. During the latter part of the month the best was found to be a serious interruption to the work, and necessitated the erection of a ventilating furnace.—Dressing: We sampled a pile of heat ore, estimated about 20 tons. There is also a pile of stamps ore nearly ready for sampling, estimated from 18 to 20 tons. During the past month the stamps were almost suspended on account of the great scarcity of water.—Roads: The 14th and 15th concession road is so far complete as to admit of being travelled upon, and the work on the road leading to the Craggs road has been pushed on with vigour, and will be completed about the middle of the present month. The bridge on the same road has not yet been commenced. The ten acre lot has been located and surveyed, as also the line of tramroad to the same across lots 18 and 19.

**CENTRAL AMERICAN.**—June 27: San Pantaleon Mine:—The Cornubia engine-shaft has been sunk a further distance of 1 fm. 6 in., by the Englishmen and three natives, at the rate of 22½ fms. per fathom. The lode, which is about 18 in. wide, continues to yield a little good silver ore. The shaft is now down 7 fms. 2 ft. 2 in. under San Felipe.—Dolores Adit: The lode in the new, or Curtis's, stop, from the back of this level, east of the ladder-road winze, is 20 in. wide, and producing 6 cwt. of good quality silver ore per fathom.—San Juan, or 10 fm. level, under Dolores: Four men have sunk No. 5 winze, sinking from this level, east of the cross-course, 6½ varas, at \$7 per var., where the lode is 2½ feet wide, composed of felspar, mafic, and olivine ore, producing of the latter about 5 cwt. per fm. of good quality. The lode in No. 8 stop, from the back of the same level, is 20 in. wide, and has produced 1 ton of rich silver ore per fm., and is at present worth from 10 cwt. to 12 cwt. of ore per fm. of good quality.—San Ricardo, or 20 fm. level, under Dolores: Six men have driven the end extending east from No. 2 cross-course 2 varas, at \$11 per var. Here the lode is 2½ feet wide, composed chiefly of felspar mixed with iron pyrites, and is producing about 3 cwt. of good quality silver ore per fm., and has a most promising appearance. This level, going west from Cornubia engine-shaft, has been advanced by two men 6½ varas, at \$8 per var., at which point it is holed to Taylor's engine-shaft, thus forming a communication all through the mine at this depth. In No. 1 stop, from the back of this level, east of No. 2 cross-course, the lode is 20 in. wide, and has produced 6 cwt. of silver ore per fm. The lode in No. 3 stop, from the back of the same level, is 2 feet wide, and has been very productive throughout the month. The larger portion of this stop has been wrought through to the level above; the remaining part, which is 5 fms. in length, produces from 6 cwt. to 7 cwt. of good silver ore per fm. In No. 4 stop, from the back of this level, the lode is 15 in. wide, and worth from 5 cwt. to 6 cwt. of silver ore per fm.—San Felipe, or 30 fm. level, under Dolores: In consequence of the lode having changed, both its bearing and underlie, we have experienced some little difficulty in finding it on the eastern side of the heave, and the vein has been only just reached. At the point of intersection the lode is of a most congenial character, composed of calcareous spar, with strings of ore passing through it. We calculate that it will produce 7 cwt. of silver ore per fathom.—San Alfonso Deep Adit: Six men have driven the end extending east in a direct course by lines towards the shaft during the month 4½ varas, at \$20 per var.—San Antonio Mines: Six men have driven San Ramon, or the new deep adit, 13 varas, at \$7½ per var. The lode in the present end is 15 in. wide, composed of gossan, mafic, and blende, and producing a little low-priced silver ore. In the same level, extending east from Elizier's shaft, six men have driven 7½ varas, at \$9 per var. Here the lode is 20 in. wide—a mixture of gossan, blende, and mafic, carrying with it against the foot-wall a rich branch of silver-lead ore, which will produce from 4 to 5 cwt. per fm.—Santa Rosalia Mine: Four men have driven the level extending east from the new south cross-cut 8 varas, at \$7 per var. The lode in this end is composed of felspar and iron pyrites mixed with silver ore, and is producing of the latter about 4 cwt. per fm. of low quality. During the month ending June 27, 141 tons 9 cwt. of ore were returned from San Pantaleon mine, the average assay of which was 100 ozs. per ton, and 8 tons 8 cwt. of ore were raised in San Antonio Mine.—Hacienda de San José: The reduction operations have been carried on without interruption during the month; 139 tons 8½ cwt. of ore were reduced, producing 5321 lbs. 11 ozs. of amalgam; 540 lbs. 11 ozs. of cak silver were run into 14 bars. On June 29, 38 bars were despatched to Guatemala, estimated to produce \$28,439.

**ALAMILLOS.**—Aug. 3: San Lino shaft, sinking below the 2d level, we expect will be holed in a few days. San Juan shaft, sinking below the 2d level, is also down to the required depth for the 3d level, and the men have commenced driving to-day. The Footway shaft, sinking below the 1st level, is much the same as stated in last report; still hard for driving. We are clearing an old winze sunk below the 1st level, which is going down in ground on the west side worth ½ ton per fm. Set to the east there are old workings, and in order to make the winze good we have set the men to clear and stop. San Jose shaft, sinking below the surface, is the east shaft, for the western engine, which we are cutting down in old workings. In the east shaft, driving west from winze, the end turns out some good stones of lead ore, but not to value. In the 3d level, east of San Juan shaft, the ground is favourable for driving; the first 2 fathoms will be carried high enough for a plat.—General Remarks: The surface works are going on satisfactorily; the engine-house is finished, with the exception of about one day's work of tiling the roof; the masons' work of the stack is also completed, and they (the masons) are now engaged walling the lower shaft. The carpenters have one whelm ready to put up as soon as we hole San Lino shaft.

**VALGODEMARD.**—During the month of July we continued driving No. 1 gallery on the grey copper at piece work, by four men, driven 2 metres; ground very hard; the lode still turning east. We have left the lode remaining in the side for these last 2 metres, so as to take it down carefully without losing the ore. Since, we have commenced taking it down to see the nature of the lode, yielding fine blocks of grey and yellow copper ore. I think it is improved in size, and also in quality, since my last; also the nature of the lode looks much more kindly. Continued sinking Long's shaft, by six men, at piece work; sunk 1 m. 70 cm.; ground very much the same: lode looking well, yielding good quantities of grey and yellow copper ore, mixed throughout with lead ore; lode has every appearance of containing the same in depth. Completed laying down the soiler over Long's shaft, and commenced stowing, by two men, at day work; stowed 4 metres (cube) in the back of No. 1 gallery; lode looking very well, yielding fine blocks of grey and yellow copper ore. Commenced a gallery on the outcrop of the grey copper lode, by two men, at day work; the lode has every appearance of having a good outcrop, which appears very kindly, having the lode very rich in mineral, where driven on about 20 metres; we have some fine stones of grey copper, since we commenced; this is 30 metres above the No. 1 grey copper gallery.—Continued driving and stowing on the upper fine grain lead lode, by two men, at day work, 3 metres cube; lode looking very well; turned out a fine pile of first and second class mineral, and has all appearance of containing the same, carrying a regular workflow, with a little felspar on it, very kindly. Continued driving the cross-cut to the Fillian's Frederic, by two men, at piece work, 3 m. 40 cm., not as yet reached the lode; rock very hard; we find some stones with mineral in it on the cross-heads; in hopes to cut the lode every day. Continued driving the cross-cut to correspond with Long's shaft, by six men, at piece work; driven 5 metres; ground more favourable, yielding a little water; I am in hopes we shall cut the lode by the 15th of September, if the ground continues the same; specks of ore have been taken out from the end to day. Continued driving No. 1 gallery lead lode, by four men, at piece work; driven 5 m. 50 cm.; lode looking well, greatly improved in size: with two regular walls, yielding lead and yellow copper. Gallery No. 2 has been stopped since the 20th of July, by reason of its being too near the surface; the men commenced a cross-cut at the former forge plat to cut the lead lode 25 metres lower down; driven on No. 2 lead lode, by two men, at piece work, 3 m. 10 cm.; lode very regular, but not rich in mineral. I am sorry to say we are very much put out by reason of not having a good mining smith. Considering that we have lost a great many hands on account of the harvest, all other operations are going on the same as usual.—J. Hoskins.

**COPIAPO.**—Checo Mine, June 20: Estimated produce for June:—

Quantity.	Quality.	Price.	Amount.
First class dark ore	Qts. 450	40	
Second class ditto	736	20	Rls. 36-34 at 22-22 per quint.
Third class ditto	128	15	
Total.	1514		Approximated value, \$3666-06

In No. 2 chifion, in the 60. Price's shaft, the lode is much the same as when last reported—very kindly. The 60 fm. level stope is not looking so well as it was. In the 50 end, driving west, the lode is still good. Eastern New Ground: The lode in this chifion is 2 feet wide, producing some good stones of ore, and looking very kindly for an improvement.—Western New Ground: The lode in this chifion is much the same as when last reported, but is not deep enough as yet to meet with the ore. On the whole the mine is looking kindly.—G. MATTHEWS.

July 3.—The agent advises the shipment, ex *Acacia*, of 1953 quintals of copper ore, of 20½ per cent, and encloses bill of lading thereof. Another shipment of similar quality would, in all probability, follow in August. The Checo Copper Mine is improving, the yield being in June 1314 quintals, of 26 per cent., valued at \$3666-06. The Dulcinea Copper Mine is turning out a good deal of ore. The Al Fin Hailada Silver Mine is working profitably. The estates of the company are improving.

**PORT PHILIP AND COLONIAL GOLD.**—The directors have received by telegram from Suez, via Malta, the following advices in anticipation of the Australian mail, from their resident director, Mr. Bland, at Melbourne, giving the result of the month of May last:—Quantity of quartz-crushed, 4800 tons; yield per ton, gold, 12 dwts. 15½ grs.; receipts, 5100£.; payments, ordinary, 1700£.; and on account of new stamps, 1100£.; profit, 2240£.; remittance, 2500£.

**VALLANZARA GOLD.**—Chevalier E. Francfort writes as follows:—“I have been during last week at the mines and at the establishment at Battiglio. We are progressing well with our work, both underground and at surface, and I hope what we are doing will be crowned with complete success. Some time next month I will send you an ingot of gold from the few mills working, chiefly on the refuse ore at Battiglio. I now send you a box of ore from the new discovery in the Cava Vecchia. It was brought direct from the mine by Capt. Roberts. You will please have an assay made of the whole quantity. Herewith I have the pleasure of handing you Capt. Jas. Roberts' report, as follows:—‘I am happy to inform that we are making great progress in the construction of the new trial mill, which will soon be ready; I hope it will answer. The Cava Vecchia level is still looking well. I have found visible gold in the ore of that level. The Mazzera level is completed for tramway; the first canal under Piazza Nuova is nearly finished, and also the floors of Piazza Nuova. We have commenced working on the lower part of the canals from mine to Fornoselli. We are pushing work as fast as possible for construction of wheel pit and new wheel.’” Annexed is a copy of the assay of the ore from the new discovery mentioned by E. Francfort, and made by F. Claudet, of London:—An assay of a fair sample of the ore sent on the 8th inst. gave the following proportions of gold and silver per ton of 20 cwt.—Fine silver, 6 ozs. 17 dwts.; fine gold, 5 ozs. 15 dwts.”

**HOLLOWAY'S OINTMENT AND PILLS—COMFORT AND RELIEF.**—All affected with outward diseases may find their best friend in these well-known remedies. The ointment is invaluable in skin affections, ulcers, bad legs, sore breast, scrofulous eruptions, and the many scrofulous complaints so apt to become hereditary. In all chronic and constitutional maladies, Holloway's Pills should be administered internally, while his ointment is applied externally—the one then assists the other, and as the outward deformity disappears the general taint is also banished. Holloway's treatment is reliable, gentle, purifying, and eminently restorative. In old ulcers, which are wearing out their victims, these remedies exert an almost magical effect—the ointment cures wounds and braces its relaxed vessels, the pills invigorate generally.

## MINING NOTABILIA.

[EXTRACTS FROM OUR CORRESPONDENCE.]

**SILVER VEIN.**—Five small parcels of silver ore were sampled last week from this mine, of the computed collective weight of about 40 tons. Four were from tribute pitches, and realised 37. 13s.; 6f. 13s.; 10f. 6s.; and 13f. 1s. per ton. One belongs to the adventurers exclusively, and was sold for 10f. 1s. per ton. The highest priced ore, 13s. 1d. per ton, was from tribute of 6s. in 11.

**ST. AONES DISTRICT.—WEST POLBRENN.**—shares are still in request, which gives evidence that the mining public are fully aware of the extraordinary value of this piece of mining property. The committee, too, are highly gratified at the prospect of being soon in a position to commence active operations, on a scale necessary to the development of its mineral wealth. There are few mineral properties in Cornwall having so many champion lodes passing through the entire length of the set—nearly 600 fms., lodes which have been enormously productive in the mines adjoining. Its geological position and local advantages are all that could be desired—strata of the stanniferous kind, peculiar to the district, and full of strings of tin, granite cropping out near the north-west boundary, and surrounded with old tin mines, the resources of which are known to the Phoenicians, and whose continuous wealth demonstrate inexhaustibility. The deep adit and the great cross-course are advantages which must not be overlooked; the former effectually draining the mine, and the latter greatly facilitating the cross-cutting to the various lodes, and effecting the saving of an enormous expense. These advantages, coupled with the present high price of tin, constitute West Polbren one of the best tin sets brought before the public for many years past. It is expected that the share list will be closed within another fortnight.

**SOUTH BASSET.**—These shares are very low in price; the mine adjoins Wheal Basset, Wheal Buller, and South Frances, which mines have given 724,117. in dividends, on an outlay of 13,300. South Bassett is in 512 shares only, with 16f. 10s. 8d. called up on each share; it embraces the same lodes as Wheal Buller and South Frances, and parallel lodes to Wheal Basset. The prospects are good: a lode may any day cut rich, and cause shares to jump up 50. in a few days; they are now about 8f. per share.

**EAST WHEAL LOVELL (near Helston).**—It is gratifying to learn how perseverance is rewarded at times. About eighteen months or two years ago this mine was very poor. Some of the shareholders refused to respond to the calls, and strained their nerves to the utmost to stop the mine; but, owing to the indefatigable exertions of the manager, and the faith some of the shareholders had in his integrity and judgment, the mine was carried on. The result is, a rich lode of tin has recently been discovered, worth at least 100f. per fathom, to the extent of the ground laid open, which is several fathoms in length, and 10 fms. in depth, with every appearance of this very rich lode continuing. It is reported that at the quarterly meeting, to be held next month, this mine will commence paying dividends, and it is to be hoped it will continue to do so for many years to come, and rival some of the neighbouring mines, which have paid immense profits in days past. This district has been pre-empted for its rich tin mines during the last century. One of the neighbouring mines returned upwards of 3,000,000. sterling in 32 years, when tin was only about one-half its present value.

**CILJAH AND WENTWORTH MINES.**—These mines, it is said, are now paying cost, and at the next meeting it is hoped a dividend will be declared. The mine has improved throughout, and the cross-cut, 50 fms. deep and 200 fms. long, has now so nearly reached the objects for which it was intended—to cut the Great Wheal Uny, Champion, and the Great Wheal Buckets lodes—that day by day they are expected to be intersected. Every indication promises success. Nearly 100,000. has been spent from calls and returns in opening up this property, and the agents state the belief that the adventurers will be well repaid for their outlay.

**WHEAL ALFRED JAMES (St. Dennis).**—By an announcement in the Journal, I learn that this mine is for sale. Perhaps you will, therefore, allow me space to explain my views as to its prospects. From what I have heard, they sink their shaft 20 fms. below surface, and the advertisement says they have four known tin lodes and one copper lode within the limits of the set. Two of the lodes have been intersected, and found to be rich for tin. No doubt it would be proper for me to say that I have no connections with the Wheal Alfred James Company, neither do I know any of the parties connected, but I am led to make these remarks from my own personal knowledge of the district, having been over the ground many a time, and very carefully inspected the strata, &c. Now, Sir, as to the geological formation of the set, there cannot be better, and in which are found the largest metalliferous deposits; it is situated strictly similar to the Camborne district, where they have the Carn Hill, and so has Wheal Alfred James. Besides this, where has there been so much tin raised by the streamers as in that district? Since there is an engine erected and two good lodes cut, I do hope, for their own interest and the character of the district, that some parties will be found to assist in a spirited working, as I am confident they will be well paid. The main lode, called the Blue lode, is further south than their shaft. About 40 years ago a mine was set to work near a mile east of Wheal Alfred James, on which a water-wheel was erected, a shaft sunk 12 fms. deep, and two lodes cut into; one of the lodes was a tin lode, 7 feet wide, containing good work, and the prospects very promising. On this lode, in driving on their cross-cut, they cut into a copper lode, which was from 10 to 12 feet wide, composed of copper, mafic, spars, pebbles, &c., with good indications of a large deposit of mineral; but, unfortunately for the shareholders, they had no means to erect steam-power, and the water increased in the bottom and decreased at surface as the summer set in, when the mine was “knocked.” Now, this has been the trial so far in this rich district. I ought also to say that these two lodes pass right through the Wheal Alfred James. I doubt if ever there were such good indications in any district so shallow as those referred to.—THOMAS PARKIN: *Royal Mine*, Aug. 6.

**WHEAL IDA SILVER-LEAD MINE** is in the parish of St. Ives, Cornwall, about one mile north of Wheal Ludcott, and half a mile south-east of South and East Caradon, consequently in a good district. The shaft is now 6 fathoms down, sinking in a fine channel of ground. A lode containing silver-lead ore was cut close to surface; this same lode they expect to meet with 20 fathoms down. It is a first-class speculation, and shares can be bought at a few shillings each.

**GOLD MINING IN WALES.**—Although the Cambrian Consolidated Mining Company has not yet reached a profitable position, the prospects of successful results being ultimately secured are in no way diminished, and the extremely small price of the shares in the market is no criterion whatever of their real value. It appears that the amount originally subscribed for working capital was 25,000£., of which about 6000£. has been expended in opening and working the mines, erecting wheel, machinery, &c., and the remaining balance is on deposit at the current rate of interest. The costs in future will be about 400£. per month, so that there are ample funds available for all purposes.

Two of the directors, accompanied by Mr. J. C. Goodman, the secretary, have recently visited the property; and the directors are quite satisfied with the work done upon the five different mines belonging to this company, as well as in the erection and efficiency of the houses, water-wheel, pumping, stone breaking, and other machinery just completed. From their own observations, backed by the opinions of their agents and others, and also strengthened by the new discovery of a lode carrying rich visible gold in a set almost adjoining their Cambrian Mines, they consider that, with the patience necessary for carrying on mining operations (more particularly in gold mining), there are no reasons for any diminution in the hopes entertained.

**SOVEREIGN GOLD MINE.**—The report of Mr. C. R. Dixon, the manager, states that the property is situated almost in the centre of the gold-bearing range of mountains, about three miles to the north of Dolgelly, and it is proved to contain in the north-west portion, to which part his attention had been principally directed, five distinct lodes, all highly mineralised, and showing indications of gold. After a careful examination of the property, operations on a small scale were commenced by him, about the middle of last February, by opening on the before mentioned five lodes. With the view of properly testing in bulk the value of the different lodes in the set, he advised the immediate erection of a small water-wheel, and a battery of four heads of stamps. The Roman lode will be cut in a fortnight, and he urged upon the directors to have the machinery ready as soon as possible after that is effected. Upon the receipt of Mr. Dixon's report, the directors invited tenders for the erection of the necessary machinery. Mr. G. F. Goodman has been appointed secretary.

**VALGODEMARD.**—From enquiries made at the office of this company 12, Bucklersbury, we find that the share list will shortly be closed. The specimens of rich tin ore from the mine are positive indications of the good results which will accrue to the shareholders on this first-class property being vigorously worked, and the shareholders ought to congratulate themselves on being associated with so highly-promising an adventure.

**WHEAL PRUDENCE.**—Advantage has been taken of the fine weather of the last three or four months to push on the surface operations as much as possible, and it is surprising to see the amount of heavy work got through since we last visited the mine. The engineers, Messrs. Michell and Jenkin, have recently got to work one of their high-pressure expansive condensing-engines for winding and other purposes, which, on inspection, we found to be working with great smoothness and to be in a very small quantity of fuel. At the engine shaft we found the way to be forklift, and steps are being taken to sink this shaft as quickly as possible to the intersection of the lode with the second eleven courses, where a large deposit of copper ore may be reasonably expected. Indeed, the top of this course of ore has been already discovered, and the workings drained by the last company by virtue of flat-rods; but frequent accidents attendant on this mode of working involved expenses which eventually exhausted the resources of the company, and brought the mine to a standstill. The present managers will, consequently, not repeat the error of their predecessors, but sink the engine-shaft 20 fms. instead, which will unwater the old workings, give 10 fms. of backs, and enable the ore to be worked away at a profit, instead of stopping the bottoms of the levels, as heretofore. This, then, is one of the leading features of Wheal Prudence, but by no means the most important. A cross-cut has been commenced in the 42, to intersect the Great St. George lodes. It should be remembered that these are the champion lodes of this mining district, and St. George has given 300,000. profit on an outlay of less than 25,000.

To more effectually work these lodes, one of which is 8 ft. in width, the western part of the St. George Mine has just been purchased by the Wheal Prudence Company, and we are informed that operations are to be commenced here also as soon as possible, thus doubling the chances of reaching one of those great metalliferous deposits for which St. George has been so famous. It is in this piece of ground that the celebrated Cligga Head is situated. The granite forming this singular headland (or pen, in the old Cornish language) crops out from under the sea; and, had it not protruded itself in this unusual manner, there would be no reason for suspecting any granite belt within several miles; but, fortunately for the mines of this district, such is the case, and the extraordinary yield of copper in St. George and Wheal Prudence can only be attributed to their proximity to the junction of the granite and kilias. We understand the Wheal Prudence is worked by a Leeds company, and, having known the mine many years since, we are glad to congratulate the company on the chances before

## British Association for the Advancement of Science.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.—THE NEXT MEETING will be HELD at NEWCASTLE-UPON-TYNE, commencing on WEDNESDAY, August 26th, 1863, under the presidency of Sir W. G. ARMSTRONG, F.R.S.

NOTICE OF COMMUNICATIONS INTENDED TO BE READ TO THE ASSOCIATION, ACCOMPANIED BY A STATEMENT WHETHER OR NOT THE AUTHOR WILL BE PRESENT AT THE MEETING, MAY BE ADDRESSED TO G. GARRIFFE, M.A., ASSISTANT GENERAL SECRETARY, OR TO CAPT. NOBLE, AUGUSTUS H. HOWE, ESQ., R. C. CLAPHAM, ESQ., LOCAL SECRETARIES, WESTGATE-STREET, NEWCASTLE-UPON-TYNE. WILLIAM SPOTTISWOODE, M.A., F.R.S., GENERAL TREASURER, 19, CHESTER-STREET, BELGRAVE-SQUARE, LONDON, S.W.

## British Association for the Advancement of Science.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.—THIRTY-THIRD MEETING, TO BE HELD AT NEWCASTLE-UPON-TYNE, 26TH AUGUST, 1863.

SECRETARIES' OFFICES, LITERARY, AND PHILOSOPHICAL SOCIETY, WESTGATE-STREET, NEWCASTLE-UPON-TYNE, JULY, 1863.

THE MEETING OF THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE FOR THIS YEAR WILL BE HELD AT NEWCASTLE-UPON-TYNE, AND WILL COMMENCE ON WEDNESDAY, THE 26TH AUGUST NEXT, UNDER THE PRESIDENCY OF SIR WILLIAM ARMSTRONG, C.B., &c.

ON THIS OCCASION IT IS EXPECTED THAT MANY OF THE CORRESPONDING MEMBERS OF THE ASSOCIATION (TO ALL OF WHOM INVITATIONS HAVE BEEN SENT), AND A LARGE NUMBER OF BRITISH MEMBERS WILL BE PRESENT.

INVITATIONS HAVE BEEN ACCEPTED TO VISIT THE LEAD MINES OF W. B. BEAUMONT, ESQ., AS WELL AS THE CLEVELAND IRON DISTRICTS, AT THE REQUEST OF THE CORPORATION OF MIDDLESBROUGH. THE MAYORS OF SUNDERLAND AND SOUTH SHIELDS HAVE KINDLY EXPRESSED A DESIRE TO RECEIVE AND ASSIST IN PROMOTING THE VIEWS OF SUCH MEMBERS AS MAY VISIT THEIR RESPECTIVE BOROUGHS.

EXCURSIONS HAVE BEEN ARRANGED TO THE NORTHUMBERLAND LAKES—THE CANAL COAL-FIELD—AND THE NECESSARY MEANS TAKEN TO SECURE READY ACCESS TO THE LEADING MINING AND MANUFACTURING ESTABLISHMENTS OF THE DISTRICT, EMBRACING, IN ADDITION TO MINES OF COAL, IRON, AND LEAD, VERY EXTENSIVE WORKS FOR THE PRODUCTION OF CHEMICALS, MACHINERY, GLASS, IRON VESSELS, FIRE CLAY, &c.

THE TIME APPOINTED FOR THE MEETING IS THOUGHT TO BE CONVENIENT FOR MEMBERS OF THE FOREIGN AND BRITISH UNIVERSITIES, AND THE FACILITIES FOR TRAVELLING TO NEWCASTLE-UPON-TYNE, ESPECIALLY FROM THE CONTINENT OF EUROPE, ARE NOW VERY COMPLETE.

BOTH THE GENERAL AND LOCAL OFFICERS WILL EXERT THEMSELVES TO MAKE THE VISIT OF NEWCASTLE-UPON-TYNE WILL BE IN GREAT NUMBER AND OF UNUSUAL INTEREST.

COMMUNICATIONS INTENDED FOR PRESENTATION TO ANY OF THE SECTIONS MAY BE ADDRESSED TO THE LOCAL SECRETARIES, AND SHOULD BE ACCOMPANIED BY A STATEMENT WHETHER THE AUTHOR WILL BE PRESENT, AND ON WHAT DAY OF THE MEETING, SO THAT THE BUSINESS OF THE SECTION MAY BE PROPERLY ARRANGED.

AS THE OBJECTS OF THE ASSOCIATION ARE ESPECIALLY SCIENTIFIC, PAPERS ON HISTORY, BIOGRAPHY, LITERATURE, ART, &c., ARE NECESSARILY INADMISSIBLE.

GENTLEMEN MAY BE PROPOSED AS LIFE MEMBERS ON PAYMENT OF £10. SUBSCRIPTIONS FOR NEW MEMBERS, £2 FOR THE FIRST YEAR. SUBSCRIPTIONS FOR OLD MEMBERS, £1. PAYMENTS OF ASSOCIATES OF THE MEETING, £1. LADIES' TICKETS (OBTAINED THROUGH A MEMBER), £1.

NAMES OF CANDIDATES FOR ADMISSION ARE TO BE SENT TO THE LOCAL SECRETARIES.

FOR ANY FURTHER INFORMATION RESPECTING THE LOCAL ARRANGEMENTS, LODGINGS, OR OTHER MATTERS, APPLICATIONS MAY BE MADE TO THE LOCAL SECRETARIES, AND TICKETS WILL BE ISSUED TO THE MEMBERS, ON APPLICATION, TO ENABLE THEM TO TRAVEL TO AND FROM THE MEETING FOR ONE FARE OVER THE CHIEF RAILWAYS.

A. NOBLE, R. C. CLAPHAM, A. H. HUNT, LOCAL SECRETARIES FOR THE MEETING IN NEWCASTLE-UPON-TYNE.

THE WEST POLBRENN TIN MINING COMPANY (LIMITED), ST. AGNES, CORNWALL. INCORPORATED UNDER THE COMPANIES ACT, 1862.

CAPITAL £600,000, IN SHARES OF £1 EACH.

DEPOSIT ON APPLICATION £5, AND 5s. ON ALLOTMENT. NO FURTHER CALLS TO BE MADE FOR TWELVE MONTHS.

DIRECTORS.

EDWARD W. BURLS, ESQ., THE VILLAS, ERITH. H. L. PHILLIPS, ESQ., 8, LONDON-STREET, FENCHURCH-STREET, LONDON. DAVID GRIMMETT, ESQ., 2, KING'S-ROW, WALWORTH, LONDON. JOHN WARD, ESQ. (FIRM OF BWARD BROTHERS), 66, BARTHOLOMEW-CLOSE, AND LINTON, LONDON. W. C. PAUL, ESQ., 79, QUENSEN'S-ROAD, BAYSWATER, LONDON.

BANKERS—ROBERTS, LUBBOCK, AND CO., 16, LOMBARD-STREET, LONDON; WILLYAMSON AND CO., MINERS' BANK, TRURO, CORNWALL.

SOLICITORS—MESSRS. WALLER AND KERLY, 2, DUKE-STREET, ADELPHI, LONDON.

AUDITOR—CHARLES WARWICK, ESQ., 25, BUCKLERSBURY, LONDON, E.C.

SECRETARY—MR. T. CARTHEW.

OFFICES, 19, BUCKLERSBURY, CITY.

THIS COMPANY IS ESTABLISHED TO PURCHASE AND WORK A VERY VALUABLE TIN MINE AT ST. AGNES, CORNWALL, KNOWN AS WEST POLBRENN.

ITS GEOLOGICAL POSITION IS FIRST RATE, BEING SURROUNDED BY THE MOST PRODUCTIVE MINES OF THIS CELEBRATED DISTRICT, AND POSSESSING 13 CHAMPION LODES OF GREAT RICHNESS AND VALUE.

THE MINE WILL BE EASILY AND VERY CHEAPLY WORKED, SALES OF THE WILL BE SOON MADE, AND NO CALL WILL BE REQUIRED FOR 12 MONTHS.

THE LAST SALE OF THE PAID ITS COST, AND IT IS FULLY EXPECTED THAT IN A SHORT PERIOD THE MINE WILL BE GIVING VERY HANDSOME PROFITS.

THE VENDORS OF THE PROPERTY ARE SO CONFIDENT IN THE SUCCESS OF THE MINE, THAT THEY HAVE SOLD THEIR ENTIRE INTEREST IN IT FOR 2200 PAID-UP SHARES. THIS IS A VERY SATISFACTORY ARRANGEMENT, AS THEY HAVE EXPENDED A DEAL OF CAPITAL ON THE PROPERTY, AND MADE IT NEARLY SELF-SUPPORTING.

A MOST VALUABLE CROSS-COURSE INTERSECTS ALL THE LODES. THE MINERS ARE NOW DRIVING THE LEVEL ON MARY'S LODE TOWARDS IT, AND OPENING UP RICH AND PROFITABLE TIN GROUND, WHICH IS IMPROVING EVERY WEEK (SEE WEEKLY REPORT FROM THE MINE). IN A SHORT TIME THE CELEBRATED DORCAS LODE WILL BE CUT, AND IT IS BELIEVED WILL AT ONCE GIVE IMMENSE RETURNS.

THE DIRECTORS SUBMIT THIS PROPERTY TO THE PUBLIC WITH THE GREATEST CONFIDENCE. A CONSIDERABLE NUMBER OF SHARES HAVE BEEN ALREADY SUBSCRIBED, AND IMMEDIATE APPLICATION IS REQUESTED FOR THE REMAINDER.

MAGNIFICENT SPECIMENS OF THE ORE MAY BE SEEN AT THE OFFICE OF THE COMPANY, WHERE PROSPECTUSES, PLANS, REPORTS, AND EVERY INFORMATION MAY BE READLY OBTAINED.

THE KYFFHAUSER MINING AND SMELTING COMPANY (LIMITED), MANSFIELD DISTRICT.

TO BE INCORPORATED UNDER THE LIMITED LIABILITY ACT.

CAPITAL £300,000, IN 10,000 SHARES OF £20 EACH. DEPOSIT, £1 PER SHARE WITH APPLICATION, AND £1 10s. PER SHARE ON ALLOTMENT.

FURTHER CALLS NOT TO EXCEED £2 PER SHARE. IT IS NOT PROBABLE THAT MORE THAN £15 PER SHARE WILL BE CALLED UP.

DIRECTORS.

CHAIRMAN—THE RIGHT HON. LORD DE MAULEY, DIRECTOR OF THE SUBMARINE TELEGRAPH COMPANY.

BARON PHILIP DE BEUST, MINERAL PROPRIETOR, ALtenburg.

HEINR. V. VON BORN, BANKER, DORTMUND.

ERNEST ALERS HANKEY, ESQ., GRESHAM HOUSE, OLD BROAD-STREET.

THEOPHILUS CLIVE, ESQ., DIRECTOR OF THE NORTHERN RAILWAY OF BUENOS AIRES.

ALFRED ELBROUCH, ESQ., 17, KING'S ARMS-YARD.

LORD GEORGE CHAS. GORDON LENNOX, M.P., 51, PORTLAND-PLACE, W.

J. H. MACKENZIE, ESQ., DEPUTY-CHAIRMAN OF THE LONDON AND LANCSHIRE LIFE INSURANCE COMPANY.

H. A. MURRAY, ESQ., 58, PARK-STREET, GROSVENOR-SQUARE, W.

THE EXCELLENCE CHARLES SCHEIDT, MINISTER OF THE INTERIOR TO H.R.H. THE PRINCE OF SCHWARZBURG RUDOLSTADT.

HERR. B. G. WEISSMULLER, LIEHN, DIRECTOR OF THE WESTPHALIAN IRONWORKS.

THE ALLIANCE BANK OF LONDON AND LIVERPOOL (LIMITED), LOXBURY, LONDON, AND BROWN'S BUILDINGS, LIVERPOOL.

BROKERS.

MESSRS. ASHURST, MORRIS, AND KNIGHT, 6, OLD JEWRY.

BROKERS.

MESSRS. JOSHUA HUTCHINSON AND SON, 15, ANGEL-COURT.

LONDON MANAGERS.

J. H. MURCHISON, ESQ., 8, AUSTINFIARS, E.C.

OFFICES, 8, AUSTINFIARS, LONDON, E.C.

THE MANSFIELD COPPER-SLATE MINES AND SMELTING WORKS, IN PRUSSIAN SAXONY, HAVE BEEN IN OPERATION FORWARDS OF 600 YEARS, AND ARE AMONG THE MOST EXTENSIVE WORKS OF THE KIND IN THE WORLD. THE RETURNS AND PROFITS THAT HAVE BEEN AND ARE BEING MADE ARE ENORMOUS, AND YET, IT IS SAID, THAT ONLY 50 PER CENT. OF THE ORE HAS, UP TO THIS TIME, BEEN REMOVED. THE DIVIDENDS PAID HAVE ALSO BEEN VERY LARGE, AT PRESENT AMOUNTING TO ABOUT £70,000 PER ANNUM, WHILE THE VALUE OF THE SHARES (780 IN NUMBER) HAS GRADUALLY RISEN TO THE PRESENT PRICE OF ABOUT £1600 EACH, OR REPRESENTING A TOTAL VALUE OF UPWARDS OF £21,000,000. THE COMPANY EMPLOYS 4500 MEN, WHICH DIRECTLY REPRESENT 13,915 INDIVIDUALS, INCLUDING WOMEN AND CHILDREN.

THIS COMPANY IS ESTABLISHED FOR THE PURPOSE OF PURCHASING THE KYFFHAUSER CONCESSION, WHICH ENCOMPASSES THE ENTIRE SUB-PRINCIPALITY OF FRANKENHÄNSEN, AND INCLUDES AN AREA OF UPWARDS OF 16,000 ACRES, ALREADY PROVED TO BE MINERAL GROUND, AND IS MOST CONVENIENTLY SITUATED AT ALMOST EQUAL DISTANCES FROM HALLE, BRANSBURG, AND ERFURT. THE OBJECT OF THE COMPANY WILL BE TO CARRY ON MINING AND SMELTING OPERATIONS IN A SIMILAR MANNER TO THAT IN WHICH IT IS DONE AT MANSFIELD.

THE KYFFHAUSER DEPOSIT IS IDENTICAL WITH THAT OF MANSFIELD. PART OF THE COPPER-SLATE LIES ABOVE THE LEVEL OF THE VALLEY, AND PART BELOW IT. THE AREA OF THE FORMER PORTION ALONE IS MANY SQUARE MILES, AND THE QUANTITY OF ORE TO BE OBTAINED FROM IT ALONE WILL SUFFICE FOR THE MOST EXTENSIVE MINING OPERATIONS FOR A PERIOD OF WHICH WE ARE NOT LIKELY TO SEE THE END. MR. JERVIS REMARKS THAT "THE EXTENT OF THE STRATA IS NOT INFERIOR TO THAT OF THE GROUND AT PRESENT CONCEDED TO THE MANSFIELD MINES, IN THE EISLAHN BASIN; AND WHEN IT IS RECOLLECTED THAT, AFTER SIX YEARS AND A HALF CENTURIES OF THE MOST UNFADING ACTIVITY AND PERSEVERANCE, THE MANSFIELD MINES ARE SO FAR FROM BEING EXHAUSTED THAT ONLY 50 PER CENT. OF THE ORE HAS YET BEEN REMOVED, SPECULATIONS AS TO THE DURATION OF THE KYFFHAUSER BED WOULD BE AS USELESS AS TO THE DURATION OF A COAL BED."

MR. JERVIS STATES THAT AS REGARDS "THE SUCCESS TO BE EXPECTED FROM THE KYFFHAUSER MINES, THERE IS LITTLE DOUBT THAT, WITH PROPER ADMINISTRATION, AND A NOT TOO RIGID COMMENCEMENT, THEY WOULD AFFORD AN SECURE AN INVESTMENT AS A BANK"; AND, TAKING THE RETURNS AT THE MODERATE QUANTITY OF 500,000 CENTNERS OF ORE PER ANNUM (THOSE OF MANSFIELD HAVING BEEN FOR MANY YEARS UPWARDS OF 1,000,000 CENTNERS, OR CONSIDERABLY ABOVE 50,000 ENGLISH TONS), HE ESTIMATES THE ANNUAL PROFITS OF KYFFHAUSER AT £47,664, WHICH WOULD BE ABOUT 25 PER CENT. ON THE WHOLE NOMINAL CAPITAL, OR A LARGER RATE ON THE AMOUNT LIKELY TO BE CALLED UP. SUBSEQUENT CALCULATIONS, SHOWING A CONSIDERABLE REDUCTION IN EXPENSES, JUSTIFY THE DIRECTORS IN HOLDING OUT THE PROSPECT OF A MUCH LARGER PERCENTAGE.

THE CONCESSION IS HELD IN PERPETUITY FROM THE PRINCE OF SCHWARZBURG RUDOLSTADT, AT A TAX OF 6 PER CENT. ON THE NET PROFITS, THE MANSFIELD COMPANY PAYING TAXES ON THEIR NET PROFITS OF 227 PER CENT.

THE COMPANY IS HELD INTO 10,000 SHARES OF £20 EACH, £1 PER SHARE TO BE PAID WITH APPLICATION, AND £1 10s. ON ALLOTMENT. FURTHER CALLS WILL NOT EXCEED £2 PER SHARE, AND AT INTERVALS OF NOT LESS THAN TWO MONTHS; IT IS NOT PROBABLE THAT MORE THAN £15 PER SHARE WILL BE CALLED UP. THE DIRECTORS WILL PROCEED AS SOON AS IN THEIR OPINION SUFFICIENT CAPITAL IS SUBSCRIBED. IF NO ALLOTMENT IS MADE THE DEPOSIT WILL BE RETURNED IN FULL.

SHAREHOLDERS CAN PAY UP THE CALLS IN ADVANCE, AND IN FULL, FOR WHICH INTEREST AT THE RATE OF 25 PER CENT. WILL BE GIVEN.

DETAILED PROSPECTUSES, WITH COPIES OF MR. JERVIS'S REPORT, AND FORMS OF APPLICATION FOR SHARES, CAN BE OBTAINED AT THE OFFICE, 8, AUSTINFIARS, E.C., AND FROM THE BROKERS.

## India Office.

BY ORDER OF THE SECRETARY OF STATE FOR INDIA IN COUNCIL, NOTICE IS HEREBY GIVEN THAT THE DIRECTOR-GENERAL OF STORES FOR INDIA WILL BE READY, ON OR BEFORE MONDAY, THE 24TH INSTANT, TO RECEIVE PROPOSALS IN WRITING, SEALED UP, FROM SUCH PERSONS AS MAY BE WILLING TO SUPPLY—

BOLT, SHEET, AND INGOT COPPER.

AND THAT THE CONDITIONS OF THE SAID CONTRACT MAY BE HAD ON APPLICATION AT THE INDIA STORE OFFICE, CANNON-ROW, WESTMINSTER, WHERE THE PROPOSALS ARE TO BE LEFT AT ANY TIME BEFORE TWO O'CLOCK P.M. OF THE SAID 24TH DAY OF AUGUST, AFTER WHICH NO TENDER WILL BE RECEIVED.

GERALD C. TALBOT, Director-General.

India Office, August 13, 1863.

THE MASTER OF THE ROLLS AT CHAMBERS.

IN THE MATTER OF THE JOINT-STOCK COMPANIES ACTWINDING-UP ACTS, 1848 AND 1849, AND 1857, AND IN THE MATTER OF THE NORTH WHEAL EXMOOUTH MINING COMPANY.—UPON THE APPLICATION OF THE OFFICIAL MANAGER OF THE ABOVE-NAMED COMPANY, AND UPON READING THE LONDON GAZETTE OF THE 14TH AND 17TH DAYS OF JULY, 1863, THE MINING JOURNAL OF THE 10TH AND 13TH DAYS OF JULY, 1863, THE WESTERN TIMES OF THE 10TH AND 17TH DAYS OF JULY, 1863, AND THE AFFIDAVIT OF HENRY THOMAS VIVIAN, SWORN THIS DAY, AND THE EXHIBITS RESPECTIVELY MARKED A, B, C, AND D, THEREIN REFERRED TO, AND NOW ON THE FILE OF PROCEEDINGS IN THIS MATTER, IT IS PERMPTORILY ORDERED THAT A CALL OF TWELVE SHILLINGS PER SHARE BE MADE ON ALL THE CONTRIBUTORIES OF THIS COMPANY WHO HAVE BEEN SETTLED ON THE LIST OF CONTRIBUTORIES, AND IT IS PERMPTORILY ORDERED THAT EACH OF SUCH CONTRIBUTORIES DO, ON OR BEFORE THE 24TH DAY OF AUGUST, 1863, PAY TO FREDERICK WHINNEY, GEO. HUME, CHIEF CLERK.

F. W. SNELL, 1, GEORGE-STREET, MANSION-HOUSE, SOLICITOR.

Wednesday, the 29th day of July, 1863.

TO STREAM ENGINE MANUFACTURERS.—TENDERS ARE REQUESTED FOR THE SUPPLY AND ERECTION OF A SIMPLE ACTION PUMPING ENGINE, CALCULATED TO RAISE 70 CUBIC METRES (FRENCH) OF WATER PER HOUR, WITH POWER TO RAISE 100 TO 110 IN CASE OF NEED. THE PRESENT DEPTH OF THE MINE IS 130 METRES, BUT IT IS INTENDED TO SINK TO 250 METRES. DIAMETER OF PUMP BUCKETS ("PLOUNGEURS") TO BE 0.32 METRES; STROKE, 3 METRES. TENDERS TO SPECIFY THE GENERAL PLAN OF THE ENGINE, AS A GUIDE FOR ESTIMATING THE COST OF ERECTION, &c.; ALSO, THE SPEED AND DIAMETER OF THE CYLINDER, THE NUMBER, WEIGHT, DIMENSIONS OF THE BOILERS ("GENERATEURS"), THE INTERIOR STEAM PRESSURE, THE GUARANTEED CONSUMPTION OF FUEL MEASURED BY THE WATER RAISED, THE OFFICIAL MANAGER OF THE SAID COMPANY, AT HIS OFFICE, NO. 5, SERIE-STREET, LINCOLN'S INN, IN THE COUNTY OF MIDDLESEX, THE BALANCE (IF ANY) WHICH WILL BE DUE FROM HIM AFTER DEDUCTING HIS ACCOUNT IN THE COMPANY'S BOOKS WITH SUCH CALL.

GEO. HUME, CHIEF CLERK.

F. W. SNELL, 1, GEORGE-STREET, MANSION-HOUSE, SOLICITOR.

Wednesday, the 29th day of July, 1863.

TO IRON FOUNDERS, IRON MERCHANTS, ENGINEERS, AND OTHERS.—A LARGE IRON FOUNDRY, IN FULL OPERATION, WITH PLANT, ENGINE-SHOP, WAREHOUSE, STOCK, &c., IN THE NEIGHBOURHOOD OF EDINBURGH, FOR SALE, BY PRIVATE CONTRACT.

THE WORKS ARE WELL KNOWN, ESTABLISHED ABOUT 30 YEARS, HAVE AN EXTENSIVE LOCAL TRADE, AND ARE EXCELSIORLY SITUATED FOR THE LOCAL AND CONTINENTAL MARKETS.

A MORE DESIRABLE OPENING IS RARELY TO BE MET WITH. THE MOST SATISFACTORY REASONS WILL BE GIVEN FOR THE SALE, AND FULL PARTICULARS WILL BE AFFORDED ON APPLICATION TO MR. HENRY ROGERS, 43, UPPER THAMES-STREET, LONDON.

TO CAPITALISTS—SLATE AND SLAB QUARRY.

WANTED, ONE OR TWO RESPECTABLE PARTIES, TO JOIN THE ADVERTISER IN EXTENDING AND ENLARGING ONE OF THE MOST PROMISING SLATE AND SLAB QUARRIES IN NORTH WALES.

THE PROPRIETOR IS NOW WORKING ONE QUARRY ON THE GRANT, WHICH IS PRODUCING A VERY EXTENSIVE NUMBER OF FIRST-CLASS SLATES AND SLABS, AND IS PAYING WELL.

REFERENCES WILL BE GIVEN IF REQUIRED. NONE EXCEPT RESPECTABLE CAPITALISTS NEED APPLY.—ADDRESS, "H. G.", MINING JOURNAL OFFICE, 26, FLEET-STREET, E.C.

A PRACTICAL MINING CAPTAIN WISHES TO ENGAGE WITH A COMPANY, TO GO ABOARD OR AT HOME.

WEST TOLCARNE MINE, NEAR CAMBORNE.  
VALUABLE MINE AND MATERIALS FOR SALE.

MR. JOHN MICHELL has been favoured with instructions to OFFER FOR SALE, BY PUBLIC AUCTION, on Tuesday, the 25th day of August, at Eleven o'clock, on the mine, all that VALUABLE MINE, called WEST TOLCARNE, with the excellent MACHINERY and MATERIALS thereon, in One Lot, consisting of—  
A 40 in. cylinder ENGINE, with one BOILER, about 12 tons, nearly new; shears, balance-bob, whim shaft tackle, 6 in. whim rope, 10 ft. in. pumpa, H piece and top door-piece, 18 in. windors, 18 in. pole, stuffing box and gland, 8 in. pole case, 2 cisterns, 2 10 in. working barrels, 2 10 in. & 8 ft. doorpieces, 1 10 in. sinking windors, 2 11 in. pumps, 1 11 in. flat bottom windors, 20 ft., 1 1/2 in. bucket rods, bucket prongs and joints, pump rings, hanger bolts, rod pins, rod plates, caps, bevels, lifting jack, 25 fms. 11 in. wood rods, 7 whim kibbles, grinding stone, air machine, staples and glands, capstan chain, 49 fms. iron stave ladders, 34 fms. ladders, knocker line, crab winch, pick and shovel hilt, carpenters' bench, chest, 2 wood sheds, smiths' bellows, anvil, vice, smiths' tools, screw stocks and tools, new and old iron, steel, miners' tools, and a quantity of useful timber. Also, the whole of the account-house furniture.

The machinery and materials may be inspected by applying to the agent, on the mine; and all further information obtained from FRANCIS PHEAS, Esq., Redruth; or Mr. JOHN MICHELL, Auctioneer, Littlebeside, Scorrier, August 12, 1863.

DERBYSHIRE.

TO MINE AND COLLIERY PROPRIETORS, ENGINEERS, AND OTHERS.

MR. DENHAM WILL SELL, BY AUCTION, on Wednesday, the 2d day of September, 1863, the whole of the VALUABLE and EXTENSIVE MINING PLANT at the NORTH DERBYSHIRE AND WREN PARK MINES, CALVER, near BAKEWELL, comprising in part a first-class 70 in. cylinder CORNISH PUMPING ENGINE (nearly new), 200 horse power, with THREE LARGE CORNISH BOILERS. Also, a 35 horse HIGH PRESSURE HORIZONTAL ENGINE, with drawing and pumping apparatus, TWO BOILERS, and two large quadrant levers. About 150 tons of pumps, varying in size from 12 to 24 in. diameter; pump rods, straps, bolts, &c.; powerful capstan, rope, and shear legs, 60 ft. high; ropes, chains, pit rails, contents of joiners and blacksmiths' shops, screw jacks, lifting screws, quantity of valuable timber, engine-houses, sheds, stores, gin, headstocks, and pulleys, crab blocks and ropes, and other miscellaneous tools admirably adapted for mining purposes, the whole of which will be particularly described in catalogues, which may be had on application to Mr. DALEBURN, Hartshill, Sheffield; or Mr. WHARFORD, engineer, Chesterfield; and of the auctioneer, seven days prior to the sale.

The mines are within two miles of the Hassop station, on the Ambergate and Manchester Railway. Chesterfield, August 8, 1863.

COUNTRY OF LANARK.  
UPSET PRICE REDUCED TO £30,000.

**T**H E DUNDYVAN IRONWORKS AND OTHER PROPERTIES, SITUATED NEAR COATBRIDGE, FOR SALE.—There will be exposed to SALE, within the Faculty Hall, Glasgow, on Wednesday, the 26th Aug., 1863, at Two o'clock afternoon (unless previously disposed of by private bargain), the DUNDYVAN FIG AND BAR IRONWORKS, comprising—

1.—The FIG IRONWORKS, consisting of EIGHT BLAST FURNACES, with all the usual working conveniences, counting-house, warehouse, stables, &c.

2.—The BAR IRONWORKS, consisting of FORTY-FOUR PUDDLING FURNACES, with all the usual working conveniences, capable of turning out 250 tons of finished iron weekly, consisting of plates, rails, and bars in great variety.

3.—ONE HUNDRED AND FIFTY-FOUR WORKMEN'S DWELLINGS, known by the names of "Long Row," "English Square," and "Stone Row."

4.—THE LANDS OF DYKE, with the FARM BUILDINGS, STEAM ENGINE, THRESHING MILL, RAILWAY, &c., thereon.

The above subjects extend to above 35 acres imperial, and the minerals therein will be included, in so far as belonging to the exposures, with the machinery, fittings, and fixed plant at Dundyvan Pit.

5.—THE MINERALS HELD IN LEASE, consisting of DRUMPELIER, SOUTER-HOUSE, and DALZIEL COAL, and WHIFFLAT and HOLEHILL IRONSTONE, with the whole MACHINERY, FITTINGS, RAILWAYS, and FIXED PLANT, of every kind attached thereto.

The purchaser will also be entitled to a lease, on favourable terms, of the valuable ironstone on the estate of Arden, extending to 1100 acres or thereby, and to the option of taking at a valuation the moveable stock and utensils connected with the mines and ironworks; and also the farm leases of Whiffflat and Souterhouse farms, including implements and utensils. All as per inventories.

For further particulars apply to Messrs. AITKEN and MACKENZIE, accountants, Glasgow; Messrs. MACKENZIE and MOORE, mining engineers there; Messrs. MELVILLE and LINDESDAY, W.S., Edinburgh; Messrs. MONCHIEF, PATERSON, and BAIRD, writers, Glasgow; or Messrs. BANNATTNEE and KIRKWOOD, writers, there; the last of whom will exhibit the titles and articles of roup.

**M**ESSRS. W. DERRY AND CO., MINING MATERIAL MERCHANTS, ST. AUSTELL, respectfully inform the mining public that they have constantly ON SALE EVERY DESCRIPTION OF MINING PLANT, in STEAM ENGINES, pitwork, and dressing appliances, which they are prepared to offer on very advantageous terms, and such as will especially commend themselves to the projectors of new undertakings.—Applications to be addressed as above, or to the engineers of the company, Mr. W. H. GRAY, St. Austell.

Dated St. Austell, August 12, 1863.

**W**ILLIAM MATHREWS, ENGINEER, TAVISTOCK, has FOR SALE:—ONE 30 in. CORNISH PUMPING ENGINE, with BOILER 9 tons; ONE 14 in. HORIZONTAL WHIM ENGINE and cage, with BOILER 4 1/2 tons; TWO 10 horse PORTABLE ENGINES, for winding or pumping; ONE CORNISH CRUSHER; ONE 30 ft. diameter WATER WHEEL, 9 ft. broad; ONE 4 ft. diameter ROLLING MILL, 10 ft. diameter, 10 ft. high; 60 fms. of 3 in. flat-rods, with pulleys.

**V**ALUABLE FREEHOLD ESTATE IN SWEDEN.—A client of Mr. T. F. Chorley possesses a valuable freehold estate in Sweden, on the Baltic, containing a vast quantity of mineral and metallic wealth, besides marble, slate, lime, brick earth, &c., and is DESIROUS of FORMING a COMPANY, under the Limited Liability Act, to work the same, with a capital of £250,000. For this purpose proposals are invited for promoting the scheme referred to, and a liberal bonus will be given on a company being formed. The proprietor will be prepared to take a considerable sum in shares.—Specimens of the ores, &c., may be seen at Mr. Chorley's office, 48a, Moorgate-street.

**C**OPPER MINE LEASES AND PLANT FOR SALE.—TO BE SOLD, BY PRIVATE BARGAIN, the LEASES and PLANT of the CALDER GLEN UNITED MINES (LIMITED), situated at LOCHWINNOCH, SCOTLAND. The very favourable opinions expressed by several respectable mining engineers as to the prospects of the mine have been fully confirmed during the short period operations have been carried on, and the mine developed; and a parcel of ore has been sent to market and disposed of with encouraging results. The plant is of the most substantial description.—Further particulars will be communicated on application to WILLIAM COXWELL, solicitor, Lichwinnoch, with whom offers will require to be lodged between the 20th and the 25th inst.—Lichwinnoch, August 6, 1863.

**A**VALUABLE TIN LODE TO BE DISPOSED OF, upon reasonable terms. The lode is into a hill on the junction of the killas and granite, and can be worked to a great advantage by erecting a stamp, which can be worked by water-power. Tin can be returned soon after the stamps are erected, and the lode worked at a profit. The lode has been proved 5 fms. below the surface, and is now visible. Into the same sett there is a bed of chima-clay, of a good quality; it can be worked at a great profit, as water is close by, and the lode near a railway.—Any further particulars can be obtained by addressing "K. C.", MINING JOURNAL office, Fleet-street, London, E.C.—Dated August 6, 1863.

**A**SLATE AND SLAB QUARRY TO BE DISPOSED OF.—A leasehold for 99 years. Royalty, 1-15th; with every convenience to open extensive quarries. There is also a railway conveyance in progress through the estate, a few hundred yards from the present quarry.—Particulars will be given on application to Mr. W. T. OWEN, Llanerfel, near Corwen, North Wales.

**F**OR SALE, BY PRIVATE CONTRACT, the CWM BACH COLLIERY, situated about two miles from the town of Swansea, in the county of Glamorgan, and within 70 yards of the South Wales Railway, having the six-foot and three-foot Seams of HIGH BITUMINOUS COAL, now open and in good working order, with engine, boiler, pumping and winding gear, complete, now working on both seams, and open for inspection on application to the proprietor, or to the manager on the works. For further particulars apply to the proprietor, Mr. DANIEL JONES, No. 54, Strand, Swansea.

**F**OR SALE, THREE BOILERS, 41 ft. by 6 ft.; 19 in. FORGING PUMP, 14 in. LIFTING PUMP, HAND PUMPS, T bob, pumping crank, lifting screw, pit chain, and other colliery material.—Apply to Mr. JOHN FARLEY, Nailsea, near Bristol.

**F**OR SALE, CHEAP, FOUR 12 ton BROAD GAUGE COAL TRUCKS. Have been at work two years. Also, four 10 ton ditto, in good condition.—Apply to R. COOK, Salisbury.

**O**N SALE, ALUMINIUM, and ALL ITS ALLOYS.—Apply to Mr. HALL, Assayer, Metallurgist, and Mining Agent, Whitehaven.

**O**N SALE, IRON and LEAD ORES of ANY QUALITY, or in ANY QUANTITY.—Apply to Mr. HALL, Assayer, Metallurgist, and Mining Agent, Whitehaven.

**P**ATENT SAFETY FUSE.—THE GREAT EXHIBITION PRIZE MEDAL was AWARDED to the MANUFACTURERS of the ORIGINAL SAFETY FUSE, BICKFORD, SMITH DAVEY, and PRYOR who beg to inform Merchants, Mine Agents, Railway Contractors, and all persons engaged in Blasting Operations that, for the purpose of protecting the public in the use of a genuine article, the PATENT SAFETY FUSE has now a thread throughout its centre, which, being patent right, is fully distinguished from all imitations, and ensures the continuity of the gunpowder. This Fuse is protected by a Second Patent, is manufactured by greatly improved machinery, and may be had of any length and size, and adapted to every climate. Address—BICKFORD, SMITH, DAVEY, and PRYOR, Tuckmill, Cornwall.

**S**AFETY FUSE.—MESSRS. WILLIAM BRUNTON AND CO. PENHALICK, POOL, near CAMBORNE, CORNWALL, and BRYMBO, near WREXHAM, MANUFACTURERS OF FUSE, of every size and length, as exhibited in the Great Exhibition of 1851, and supplied to the Royal Arsenal at Woolwich, the Arctic Expedition, and every part of the globe.

For the convenience of their customers and others in the North, W. BRUNTON and Co. have recently erected a branch manufacture at Brymbo, near Wrexham, where, as at Cornwall, they are at all times PREPARED to EXECUTE UNLIMITED ORDERS of SUPPLYING FUSE upon warrant that it will prove equal to, if not better than any to be procured elsewhere.

**A**SSAYS AND ANALYSES OF EVERY DESCRIPTION Conducted by JOHN MITCHELL, F.C.S., M.G.A. (late Mitchell and Rickard) Author of "Manual of Practical Assaying," "Metallurgical Papers," &c. All communications and samples to be addressed (free) to Mr. MITCHELL, care of Mr. CLAY, 29, Great St. Helen's, London, E.C.

## NICHOLLS, WILLIAMS, AND CO., ENGINEERS, BEDFORD IRONWORKS, TAVISTOCK.

MANUFACTURERS OF STEAM ENGINES of EVERY DESCRIPTION, made on the BEST and NEWEST PRINCIPLES. We beg more especially to call the attention of the public to the manufacture of our BOILERS, which have been tested by most of our leading engineers. PUMP WORK CASTINGS of EVERY DESCRIPTION, both of brass and iron. HAMMERED IRON and HEAVY SHAFTS of ANY SIZE. CHAINS made of the best iron, and warranted. RAILWAY WORK of EVERY DESCRIPTION.

## FISHER BROTHERS AND CO. FIRE BRICK MANUFACTURERS, STOURBRIDGE. BLAST FURNACE BRICKS of the MOST DURABLE QUALITY SUPPLIED to ANY SPECIFICATION.

**S**HORTRIDGE, HOWELL, AND CO., HARTFORD STEEL WORKS, SHEFFIELD, SOLE MANUFACTURERS of HOWELL'S PATENT HOMOGENEOUS METAL PLATES for BOILERS, LOCOMOTIVE FIRE BOXES, and TUBES, COMBINING the STRENGTH of STEEL with the MALLEABILITY of COPPER. RUSSELL and HOWELL'S PATENT CAST STEEL TUBES. McCONNELL'S PATENT HOLLOW RAILWAY AXLES.—For prices and terms, apply to SHORTRIDGE, Howell, and Co., Hartford Steel Works, Sheffield; or Messrs. HARVEY and Co., 12, Haymarket, London.

## RAILWAY WAGONS.—WILLIAM A. ADAMS AND CO., MIDLAND WORKS, BIRMINGHAM. BROAD AND NARROW GAUGE COAL and IRONSTONE WAGONS. IN STOCK—FOR SALE or HIRE.

## RAILWAY STONE AND COAL WAGONS TO BE LET.—Apply to Messrs. W. L. and T. UNDERHILL, Tipton.

## RAILWAY CARRIAGE COMPANY (LIMITED). ESTABLISHED 1847. OLD BURY WORKS, NEAR BIRMINGHAM. MANUFACTURERS of RAILWAY CARRIAGES and WAGONS, and EVERY DESCRIPTION of IRON WORK.

Passenger carriages and wagons built, either for cash or for payment over a period of years.

## RAILWAY WAGONS FOR HIRE.—CHIEF OFFICES, OLD BURY WORKS, NEAR BIRMINGHAM. LONDON OFFICES, 6, STOREY'S GATE, GREAT GEORGE STREET, WESTMINSTER.

## THE BIRMINGHAM WAGON COMPANY (LIMITED). ESTABLISHED 1851. OFFICES, 3, NEWHALL STREET, BIRMINGHAM.

## THE PATENT FILE COMPANY (LIMITED). CAPITAL £100,000, in 10,000 shares of £10 each.

Deposit on application, 10s. per share. Payment on allotment, 10s. per share.

Calls of £1 per share, at intervals of not less than two months. Detailed prospectuses, and forms of application for shares, may be obtained at the office of the company, 27, Moorgate-street, London, and 29, Waterloo-street, Birmingham. CHAIRMAN—BERNARD GILPIN, Wedges Mills, Cannock. SECRETARY—HENRY HOWELL, 29, Waterloo-street, Birmingham. LONDON SECRETARY (pro tem.)—JOHN SICARD RUTTER, 27, Moorgate-street, London.

## THE PATENT FILE COMPANY (LIMITED).

The provisional committee, being anxious to avoid unnecessary preliminary expenses, respectfully request intending applicants for shares to make immediate application, through the secretaries, 29, Waterloo-street, Birmingham, and 27, Moorgate-street, London, or the following brokers, viz.:—The Members of the Birmingham Stock Exchange; Mr. SAMUEL FERNETHOUGH, Manchester; Mr. RICHARD WITHERS, Liverpool; Messrs. JOHN WATSON and Son, Sheffield; Mr. JONATHAN DREWERY, Newcastle-on-Tyne; Mr. W. H. GREEN, Gloucester; Mr. G. S. BRYANT, Bristol; Messrs. WATSON and SMITH, Glasgow; Messrs. JAMES CARTER and Son, Nottingham; Messrs. WILKINSON and INGLEBY, Hull; Mr. ROBERT MOWATT, 14, George-street, Edinburgh; Mr. CHARLES STEVENSON, Derby; Mr. JOHN BARRETT, Wellington; Mr. THOMAS CLARK, Hertford-street, Coventry. HENRY HOWELL.

## HOCHDAHL PIG-IRON, AND HOCHDAHL "SPIEGEL-EISEN."

HOCHDAHL, near Dusseldorf (Rhenish Prussia), July 11, 1863.

We beg to announce that we have this day appointed Messrs. ROBINSONS AND MARJORIBANKS, in GLASGOW, to be our SOLE AGENTS for the SALE, in GREAT BRITAIN, of our HOCHDAHL PIG-IRON, and HOCHDAHL "SPIEGEL-EISEN," and we would invite orders through the medium of the said firm.

## THE HOCHDAHL MINING COMPANY.

GEO. JOSER, J. SCHIMMELBACH.

GLASGOW, JULY 14, 1863.—With reference to the annexed announcement, we beg to direct attention to the Fig-iron and "Spiegel-Eisen" of the Hochdahl Mining Company, in Rhenish Prussia. These kinds of iron are produced from the spathic and brown hematite iron ores, from the best mines in the Siegen and Nassau districts. There are several mines in these districts, the products of which are of exquisite purity; and, if they have not yet become better known and appreciated, it is solely attributable to the absence of railway communication hitherto.

The Hochdahl Mining Company has secured the working of the above mines for a long series of years; this, and the very excellent system adopted in their works, enable them to supply uniformly the same good qualities.

A careful analysis of the different kinds of iron has yielded the following results:—

Hochdahl	Hochdahl	Hochdahl	Hochdahl
"Spiegel-Eisen" A	Pig-iron A	"Spiegel-Eisen" C	Pig-iron C
Best Best	Best Best	Best	Best
Made with coke.	Made with coke.	Made with coke.	Made with coke.
Iron ... per cent. 85-67	89-96	90-61	95-70
Manganese ... 8-07	5-57	4-96	2-95
Carbon ... 5-04	3-91	4-20	0-37
Silica ... 0-41	0-26	0-46	0-26
Aluminium ... 0-06	0-04	0-05	0-04
Sulphur ... 0-03	0-03	0-03	0-03
Copper ... 0-04	0-04	0-04	0-04

These results show the great excellence and purity of these kinds of iron, which are demonstrated by practical experience, as proved by the reputation which the Hochdahl Ironworks enjoy, both in Germany and in France. At present they produce already, with three furnaces, 700 tons weekly, but they continue still further to extend. The very small presence of silica is one of the characteristics of the Hochdahl iron—all other kinds of iron (not excepting even those made with charcoal) containing at least twice as much. The great advantage of the absence of silica is that the iron does not injure the puddling furnaces, and is therefore used in preference by the puddling works.

In order well and satisfactorily to work the iron, and especially the "Spiegel-Eisen," it is requisite that the puddling furnace should have a strong draught and great heat, so that the iron may be continued to be worked, after being melted, with the register

The Hochdahl "Spiegel-Eisen" is well adapted for the Bessemer process; and its great suitability for puddled and cast-steel is beyond doubt. "Spiegel-Eisen" A is chiefly used for the manufacture of cast-steel articles. "Spiegel-Eisen" C" and "Pig-iron C" are much used in Germany for puddle steel articles. "Spiegel-Eisen" C" is besides used in preference for the manufacture of the best qualities of sheets, bars, angle and T iron, and for wire drawing. "Pig-iron A" Best Best (which is produced from the same iron as the "Spiegel-Eisen" A") is even more suitable for puddled steel, because it melts faster in the furnace than "Spiegel-Eisen" A", and gives a better result than "Spiegel-Eisen" C". The present prices are:—

"Spiegel-Eisen" A" .....	£6 5 0 per ton,
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## THE MINING SHARE LIST

## DIVIDEND MINES.

Shares.	Mines.	Paid.	Last Pr.	Business.	Dividends Per Share.	Last Paid.
1000 Alderley Edge (Cheshire) [L.]	10 0 0 ..	..	..	7 18 6 ..	0 10 0	— May, 1862
4000 Bedford United (copper), Tavistock	3 6 8 ..	..	..	13 18 0 ..	0 1 6	— July, 1862
1348 Boscombe (tin, copper), St. Just	6 15 0 ..	..	..	0 5 0 ..	0 5	— June, 1862
340 Boscombe (tin, St. Just)	20 10 0 ..	..	..	36 10 0 ..	1	— May, 1862
1000 Botallack (tin, copper), St. Just	9 5 0 ..	..	..	462 10 0 ..	7	— May, 1862
8000 Bonydroy (lead), Cardigan [L.]	2 7 6 ..	..	..	0 9 0 ..	0 2	— April, 1862
918 Cargill (silver-lead), Newlyn	15 5 7 ..	44	..	3 10 0 ..	1	— May, 1862
1000 Cary Bars (copper, tin), Illogan	15 0 0 ..	..	..	278 10 0 ..	2	— Feb., 1862
3000 Chiverton (lead), Perranzabuloe	—	—	—	28 13 6 ..	0	— June, 1862
3900 Clifford Amalgamated (cop.), Gwase	30 0 0 ..	82	30 31	..	7 6 ..	— June, 1862
1024 Copper Hill (copper) Redruth	12 0 0 ..	..	20 21	2 7 6 ..	— Sept., 1862	
12000 Copper Minas of England	25 0 0 ..	..	..	7 14 per cent.	— Half-yrly.	
4000 Ditto (stock)	100 0 0 ..	..	..	4 per cent.	— Half-yrly.	
1055 Craddock Moor (copper), St. Cleer	8 0 0 ..	..	..	7 12 0 ..	0 4	— July, 1862
512 Creighnewee and Pankerville, St. Columb	—	—	..	9 18 0 ..	0 15	— July, 1862
567 Cwm Erdin (lead) Cardiganshire [L.]	7 10 0 ..	14	..	251 10 0 ..	4	— May, 1862
128 Gwynnstywith (lead), Cardiganshire	60 0 0 ..	..	..	147 0 ..	5	— June, 1862
280 Derwent Mines (sl.,-lead), Durham	300 0 0 ..	..	..	863 0 ..	9	— July, 1862
1024 Devon Gt. Com. (cop.), Tavistock [S.E.]	1 0 0 ..	570	..	725 10 0 ..	8	— Aug., 1862
558 Dolcoath (copper, tin), Camborne	128 17 6 ..	..	..	0 18 0 ..	0 1	— May, 1862
12000 Dolywain (lead), Illogan	1 0 0 ..	..	..	17 6 ..	— June, 1862	
5000 Dwyngwyn (lead), Wales	12 6 6 ..	..	..	17 6 ..	2	— June, 1862
512 East Bassett (cop.), Redruth [S.E.]	20 10 0 ..	82	79 81	111 0 ..	2	— Oct., 1862
1144 East Caradon (copper), St. Cleer [S.E.]	3 14 6 ..	29	29 29	7 7 6 ..	6	— June, 1862
500 East Darren (lead), Cardiganshire	32 0 0 ..	..	..	87 10 0 ..	2	— Aug., 1862
128 East Pool (tin, copper), Pool, Illogan	24 8 0 ..	..	..	835 0 ..	5	— June, 1862
2800 Foxdale (lead) Isle of Man [L.]	25 0 0 ..	..	..	—	—	
5000 Frank Mills (lead), Devon	18 3 6 ..	..	..	0 18 0 ..	0 9	— Mar., 1862
1798 Great Wheal Fortune (tin), Breage	18 6 0 ..	35	29 30	5 5 0 ..	0 15	— Aug., 1862
5000 Great Wh. Vor (tin, cop.), Helston [S.E.]	40 0 0 ..	..	..	114 18 0 ..	7	— May, 1862
8000 Gunwal Lake (Clitters) Adit	0 2 0 ..	..	..	15 17 7 ..	0	— Jan., 1862
1924 Herodsfoot (ld.), near Liskeard [S.E.]	8 10 0 ..	40	37 1/2 38 1/2	25 0 ..	1 15	— June, 1862
1000 Hibernal Mine Company	92 6 2 ..	..	..	9 15 0 ..	0	— Feb., 1862
4000 Illesburgh (lead), Cardiganshire, Wales	18 15 0 ..	..	..	408 10 0 ..	3	— June, 1862
9000 Marke Valley (copper), Caradon	4 10 6 ..	6	51 1/2 53 1/2	2 9 6 ..	0	— July, 1862
1800 Miners Mining Co. [L.], (Id.), Wrexham 25 0 ..	..	..	..	44 18 0 ..	7	— May, 1862
20000 Mining Co. of Ireland (cop., lead, coal)	7 0 0 ..	19	..	18 18 0 ..	6	— Mar., 1862
640 Mount Pleasant (lead), Mold	4 0 0 ..	..	..	18 18 0 ..	7	— Aug., 1862
40000 Mwyndy (iron ore) [L.] [S.E.]	2 10 0 ..	..	..	0 2 0 ..	0	— Mar., 1862
2500 Nanty Mines (lead), Montgomery	20 0 0 ..	..	..	3 0 0 ..	0	— June, 1862
5526 North Treskerby (copper), St. Agnes	1 9 0 ..	8	8 1/2 8 1/2	0 7 6 ..	0	— June, 1862
5000 Osred (lead), Flintshire	0 0 8 ..	..	..	0 10 4 ..	0	— Mar., 1862
6400 Pa. Consol. (cop.), St. Blazey [S.E.]	1 2 6 ..	..	..	86 19 0 ..	2	— Mar., 1862
2000 Parys Mines (copper), Anglesey [L.]	50 0 0 ..	..	..	72 10 0 ..	10	— July, 1862
1732 Polderno (tin), St. Agnes	—	—	..	7 9 6 ..	0	— April, 1862
512 Polbreen (tin) ..	8 0 0 ..	..	..	1 0 0 ..	0	— July, 1862
1123 Providence (tin), Ury Lelant [S.E.]	10 0 7 ..	42	..	68 10 0 ..	1	— May, 1862
6000 Rosewall Hill and Ransom United	2 16 0 ..	..	..	10 0 0 ..	1	— June, 1862
16 Rhosessor (lead)	50 0 0 ..	..	..	1250 0 ..	100	— Quarterly
512 South Caradon (cop.), St. Cleer [S.E.]	1 5 0 ..	430	..	409 0 ..	5	— July, 1862
512 South Tolgas (cop.), Redruth, Cornwall [S.E.]	8 0 0 ..	..	..	74 10 0 ..	1	— May, 1862
5000 South Exmouth (lead), Christow	1 0 0 ..	..	..	0 5 0 ..	0	— Dec., 1862
198 S. Wh. Frances (cop.), Illogan [S.E.]	18 18 9 ..	..	..	368 0 ..	1	— July, 1862
1024 South Woodley	0 5 6 ..	..	..	0 6 0 ..	0	— June, 1862
280 Speare Moon (tin, copper), St. Just	31 17 9 ..	..	..	9 15 0 ..	1	— June, 1862
940 Ives Consols (tin), St. Ives	8 0 0 ..	..	..	27 28	—	
6000 Tinicroft (cop., tin), Pool, Illogan [S.E.]	9 0 0 ..	22	22	486 10 0 ..	10	— May, 1862
1000 Trumpet Consols (tin), near Helston	11 10 0 ..	..	..	12 8 6 ..	0	— April, 1862
6200 Vigra and Clogau (cop.) [L.]	2 15 0 ..	..	..	11 0 0 ..	2	— Mar., 1862
8000 West Bassett (copper), Illogan [S.E.]	1 10 0 ..	12	..	4 12 6 ..	1	— Oct., 1862
1024 West Caradon (cop.), Liskeard [S.E.]	5 0 0 ..	21	21 22	24 2 0 ..	0	— July, 1862
3000 West Chiverton (lead), Perranzabuloe	—	28	28 29	101 1 ..	2	— Oct., 1862
256 West Damsel (copper), Gwennap	38 10 0 ..	..	..	47 0 ..	1	— July, 1862
6100 West Fowey Consols (tin and copper)	7 10 0 ..	8	8 1/2 8 1/2	3 4 6 ..	0	— April, 1862
1024 West Penfroth (lead)	4 0 0 ..	..	..	76 5 0 ..	1	— May, 1862
4000 W. Wh. Seton (cop.), Camborne [S.E.]	47 10 0 ..	..	..	21 2 6 ..	0	— June, 1862
50000 X. Fort (lead), Tavistock	255 245	..	..	288 0 ..	5	— Aug., 1862
50000 Y. Fort (lead), Tavistock	60 65	..	..	593 10 0 ..	1	— Aug., 1862
10000 Z. Wheel Bassett and Grylls (tin)	7 0 0 ..	24	..	2 10 0 ..	0	— July, 1862
1094 Wheal Grylls (tin)	2 4 0 ..	..	..	2 6 0 ..	0	— June, 1862
42000 Wh. Ludcott and Wrey (lead), St. Ives	2 10 8 ..	8	8 1/2 8 1/2	3 4 6 ..	0	— April, 1862
500000 Wh. Margaret (tin), Ury Lelant [S.E.]	9 17 6 ..	38	..	76 5 0 ..	1	— May, 1862
100000 Wh. Mary Ann (ld.), Menheniot [S.E.]	56 2 6 ..	..	..	284 0 ..	4	— Mar., 1862
512 Wh. Miners (cop.), Illogan [S.E.]	60 0 ..	18	..	57 6 0 ..	0	— Mar., 1862
500000 Wh. Owles (tin), St. Just, Cornwall	70 0 ..	..	..	323 0 ..	5	— May, 1862
296 Wh. Wheel Seton (tin, copper), Camborne	50 10 0 ..	22	22 22	156 15 0 ..	3	— Aug., 1862
1040 Wh. Trellawny (cop., Id.), Liskeard [S.E.]	5 17 0 ..	17	17 17 1/2	47 2 6 0 ..	0	— June, 1862
500000 Wh. Wicklow (copper), Wicklow	5 0 0 ..	..	..	44 17 6 ..	1	— May, 1862

[\* Dividends paid every two months. † Dividends paid every three months.]

## MINES WITH DIVIDENDS IN ABEYANCE.

Shares.	Mines.	Paid.	Last Pr.	Business.	Dividends Per Share.	Last Paid.
3444 Burra Burra (cop.), South Australia	5 0 0 ..	..	..	9 0 0 ..	4	— April, 1861
5000 Central American (silver) [L.]	5 0 0 ..	..	..	2 2 9 ..	0	— Oct., 1862
2450 Cook's Kitchen (copper), Illogan	17 15 9 ..	26	25 26	1 7 0 ..	0	— July, 1862
4076 Devon and Cornwall (copper)	5 10 8 ..	..	..	0 10 0 ..	0	— Feb., 1862
672 Ding Dong (tin), Gulval	40 15 0 ..	..	..	16 7 6 ..	1	— Mar., 1862
940 Fowey Consols (copper), Tywardreath	4 0 0 ..	..	..	41 9 3 ..	2	— June, 1862
6000 Great South Tolgas [S.E.], Redruth	0 14 6 ..	8	8 1/2 8 1/2	7 18 6 ..	0	— Dec., 1861
5000 Kelli Bray (lead, copper), Callington	4 15 6 ..	..	..	0 6 0 ..	0	— Feb., 1862
160 Levant (copper, tin), St. Just	20 10 0 ..	..	..	1091 0 ..	5	— May, 1862
6000 New Birch Tor and Vitifer Cons. (tin), 1 6 6 ..	..	..	..	0 3 6 ..	0	— Sept